
**PRELIMINARY ASSESSMENT OF
ELIGIBILITY REPORT
FOR THE
ST. LOUIS ORDNANCE PLANT (SLOP)
ST. LOUIS, MISSOURI
June 2001**



U.S. ARMY CORPS OF ENGINEERS
KANSAS CITY DISTRICT

0744

40423598

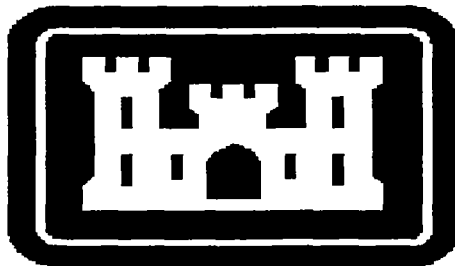
1.0



Superfund

0000

**PRELIMINARY ASSESSMENT OF
ELIGIBILITY REPORT
FOR THE
ST. LOUIS ORDNANCE PLANT (SLOP)
ST. LOUIS, MISSOURI
JUNE 2001**



U.S. ARMY CORPS OF ENGINEERS
KANSAS CITY DISTRICT

EXECUTIVE SUMMARY

The former St. Louis Ordnance Plant (SLOP) lies in the City of St Louis, Missouri and is bisected by Goodfellow Boulevard. The plant was authorized on 5 December 1940 and ultimately placed on inactive status in 1957. During its 17 year history the plant operated as a Government Owned/Contractor Operated Facility (GOCO) on approximately 329 acres. SLOP was used for manufacturing, testing, and storing of .30 and .50 caliber cartridge components and the manufacturing of 105 millimeter (mm) shells.

There have been numerous investigations and reports generated for the former SLOP. These documents have focused on specific areas on both sides of Goodfellow Boulevard (east and west). The focus of this Preliminary Assessment of Eligibility (PAE) Report is on the area east of Goodfellow Boulevard with the exception of the northern portion of the property which is known as the St. Louis Army Ammunition Plant (SLAAP).

SLOP property east of Goodfellow Boulevard is part of the Army's Formally Used Defense Sites (FUDS) program. To facilitate the conveyance of the property to private owners the site was divided into parcels. With the exception of Parcel 11, 12, 13, 14, and parts of 8 that are owned and maintained by the Army Reserve and the General Service Administration, all other parcels are owned by private parties.

The federal government and private parties have beneficially used SLOP property since its deactivation. Many of the original structures have been removed and new industrial and non-industrial facilities have been built. Structures that do remain have been converted to offices and warehouses. The former SLOP property now operates as an industrial park. The various facilities run equipment and operate machinery that have their own environmental concerns.

Due to the extensive reuse of the former SLOP property, a Potential Responsible Party (PRP) project is recommended, as authorized per the Defense Environmental Restoration Project – FUDS guidance manual, to determine former and present industrial activities at the former SLOP.

1.0	INTRODUCTION.....	5
1.1	GENERAL.....	5
1.1.1	Area of Focus.....	5
1.1.2	Government Owned Contractor Operated.....	5
1.2	AUTHORITY.....	2
2.0	SITE HISTORY.....	2
2.1	GENERAL.....	2
2.2	HISTORY OF DoD OWNERSHIP.....	2
2.3	PRESENT OWNERSHIP.....	3
3.0	PREVIOUS INVESTIGATIONS AND REPORTS.....	4
3.1	SLOP AIR AND STREAM POLLUTION MESSAGE, DECEMBER 1954.....	4
3.2	SLOP DECONTAMINATION STATUS, JANUARY 1962.....	4
3.3	INSTALLATION ASSESSMENTS DECEMBER 1979 AND JULY 1987 UPDATE.....	4
3.4	SURVEY OF HAZARDOUS/CHEMICAL AREA NO. 2 OF THE FORMER SLOP, JUNE 1981.....	4
3.5	PRELIMINARY ASSESSMENT OF SLOP (EPA ID# MO8210022465), SEPTEMBER 1984.....	5
3.6	DERP/FUDS-FINDINGS AND DETERMINATION OF ELIGIBILITY, JULY 1988.....	5
3.7	REAL ESTATE REPORT, FEBRUARY 1989.....	5
3.8	SITE SURVEY SUMMARY SHEET, 1991.....	6
3.9	ARCHIVES SEARCH REPORT FOR SLOP, DECEMBER 1993.....	6
3.10	REVISED SITE SURVEY SUMMARY SHEET AND PROJECT SUMMARY SHEET, NOVEMBER 1995.....	7
3.11	PROJECT SUMMARY SHEET FOR PRP INVESTIGATION, JANUARY 1997.....	8
3.12	SITE INSPECTION, FEBRUARY-MARCH 1999.....	8
3.12.1	Parcel 1.....	8
3.12.2	Parcel 2.....	8
3.12.3	Parcel 3.....	8
3.12.4	Parcel 4.....	8
3.12.5	Parcel 5.....	9
3.12.6	Parcel 6.....	9
3.12.7	Parcel 7.....	9
3.12.8	Parcel 8.....	9
3.12.9	Parcel 9.....	9
3.12.10	Parcel 11.....	9
3.12.11	Parcel 12.....	10
3.12.12	Parcel 13.....	10
3.12.13	Parcel 14.....	10
3.12.14	Central States Diversified Warehouse.....	10
4.0	SURVEY QUESTIONNAIRE.....	10
4.1	PARCEL 1, CONTICO INTERNATIONAL, INC.....	10
4.2	PARCEL 2, BOXTECH PACKAGING.....	10
4.3	PARCELS 2, 3, AND 5. MADISON WAREHOUSE CORP. & MADISON REDEVELOPMENT CORP.....	10
4.4	PARCEL 4, GATEWAY PRESS INCORPORATED.....	11
4.5	PARCEL 5, CHURCHILL TRUCK LINES.....	11
4.6	PARCEL 6, PEPSI COLA BOTTLING COMPANY.....	11
4.7	PARCELS 7 AND 9, LINCOLN INDUSTRIAL CORPORATION.....	11
4.8	PARCELS 11, 12, 13, AND 14, GENERAL SERVICES ADMINISTRATION (GSA).....	11
5.0	FINDINGS.....	11
5.1	BUILDINGS AND SOILS.....	12
5.2	SITE SURVEYS AND QUESTIONNAIRES.....	12
6.0	RECOMMENDATIONS.....	12
6.1	BUILDINGS STATUS.....	12
6.2	PRP SEARCH.....	12

LIST OF FIGURES

- Figure 1: Vicinity Map of the St. Louis Ordnance Plant
- Figure 2: Site Map of the St. Louis Ordnance Plant
- Figure 3: Building Map of the St. Louis Ordnance Plant East of Goodfellow Boulevard
- Figure 4: Parcel Map of the St. Louis Ordnance Plant
- Figure 5: 1960 Photograph Review of the St. Louis Ordnance Plant
- Figure 6: Archives Search Report Map of St. Louis Ordnance Plant

LIST OF TABLES

- Table I: Building and Land Description of McQuay-Noris Area
- Table II: Building and Land Description of Plant Area No. 1 U.S. Cartridge Area
- Table III: Building and Land Description of Plant Area No. 2 U.S. Cartridge Area
- Table IV: Current Property Owners and/or Tenants
- Table V: Various Names or Aliases at the St. Louis Ordnance Plant
- Table VI: Survey Questionnaire Responses

APPENDICES

- Appendix A: Finding of Facts of 27 July 1988
- Appendix B: Technical Bulletin (TB 700-4) Decontamination of facilities and Equipment dated October 1978
- Appendix C: Site Survey Summary Sheet of 22 February 1991
- Appendix D: Revised Site Summary Sheet of 3 November 1995
- Appendix E: Project Summary Sheet of 10 January 1997
- Appendix F: 1999 Photographic Record
- Appendix G: Survey Questionnaire Letter

1.0 INTRODUCTION

1.1 General.

1.1.1 Area of Focus

The area generally referred to as the St. Louis Ordnance Plant (SLOP) is located on the northwestern border of the City of St. Louis, Missouri, where it joins with St. Louis County (Figure 1, Vicinity Map of SLOP). This area has had a long and complex history. Figure 2, Site Map of SLOP, identifies the areas that have been historically identified as SLOP. Figure 2 depicts seven specific areas that comprise SLOP. The areas lie south of current Interstate 70 and are bisected by Goodfellow Boulevard. The seven areas are as follows:

- McQuay-Norris Area
- Plant No. 1 U.S. Cartridge Area
- Plant No. 2 U.S. Cartridge Area
- Chevrolet-Shell Division of General Motors Corporation Area = SLAAP (St Louis Army Ammo Plant)
- Wherry Housing Area
- Hazardous/Chemical Area No. 2 (also known as the "Hanley") Area
- US Army Reserve Center No. 3 Area

The three (3) areas west of Goodfellow Boulevard (US Army Reserve Center, No. 3 Area; Hazardous Chemical Area, No. 2 Area; and Wherry Housing) and one (1) area west of Goodfellow Boulevard (Chevrolet-Shell Division of General Motors Corporation) are part of the Army Installation Restoration (IR) program. The status of investigations and remediation in these areas may be found in the 1999 *Installation Action Plan for the 89th Regional Support Command*. They are not part of this report.

The three (3) remaining areas east of Goodfellow Boulevard (i.e., McQuay-Norris, Plant No. 1 U.S. Cartridge, and Plant No. 2 Cartridge) are part of the Army's Formerly Used Defense Sites (FUDS) program. Individually, these areas have been the subject of several site surveys and investigations. This report only addresses the three (3) FUDS areas east of Goodfellow Boulevard.

1.1.2 Government Owned Contractor Operated

SLOP was managed as a government owned contractor operated (GOCO) facility. *The Defense Environmental Restoration Program – Formerly Used Defense Sites (DERP – FUDS) Program Manual* dated 30 September 1999 provides guidance/policy on closed GOCO facilities. In particular, "if a FUDS property was operated by another party under a contract or lease or other commercial arrangement during the period the property was under the jurisdiction of the Department of Defense (DoD) and hazardous substances were disposed during that period of operations...[then] the operator will be considered a potential responsible party (PRP) for the property."

1.2 Authority.

The DERP – FUDS Manual provides guidance for work at all DoD installations. Work at active sites falls within the purview of the DERP-IR Program. Work at facilities formerly owned by the DoD falls under the DERP-FUDS Program. This report is being prepared under the regulations, policies, and guidance requirements of the DERP-FUDS program.

The DERP-FUDS program has three (3) major stages: inventory, study, and removal/remediation.

- The inventory stage consists of property identification; real estate search to verify previous DoD ownership or usage; and Preliminary Assessment of Eligibility (PAE) to determine property and project eligibility. Conclusions of a PAE are documented by an Inventory Project Report (INPR) which contains the real estate findings and other required PAE information.
- The study stage may consists of the following: a Site Inspection (SI) to confirm the contamination; an Engineering Evaluation/Cost Analysis (EE/CA) for a removal project; a Remedial Investigation/Feasibility Study (RI/FS) for a remedial project; and/or litigation, negotiation, and settlement with other parties relative to defining and resolving the DoD liability for a potentially responsible party (PRP) project.
- The removal/remediation stage consists of: a Removal/Remedial Action (RA) which is the removal/remedial design (construction, operations, and long-term monitoring [LTM]); a Remedy In-Place (RIP) which is the milestone when RA construction is completed; and a Response Complete (RC) which is the milestone when RA operation is completed.

This report will provide supporting information required in the inventory stage of the DERP-FUDS program: i.e., inventory stage.

2.0 SITE HISTORY.

2.1 General.

SLOP is located within the city limits of St. Louis, Missouri. The plant was authorized on 5 December 1940, when the Office of the Chief of Ordnance negotiated a contract for the construction of the site. The original area, that included all of SLOP, covered approximately 329 acres. The area included in this report only covers approximately 200 acres and is comprised of the McQuay-Norris Area (10 acres), Plant No. 1 U.S. Cartridge Area (122 acres), and Plant No. 2 U.S. Cartridge Area (65 acres).

During the United States involvement in World War II, the plant was used for manufacturing, testing, and storing .30 caliber and .50 caliber cartridge components. During the Korean War part of the plant was modified for the manufacturing of 105 millimeter (mm) shells.

2.2 History of DoD Ownership.

Prior to construction in 1941, General Electric owned the property. No records have been found concerning General Electric's use of the property prior to DoD ownership. The surrounding area was industrial and residential. Both the ammunition and the core producing facility were constructed on this property.

The United States Cartridge Company (U.S. Cartridge) operated Plants No. 1 and 2, consisting of 187 acres, for the production of small arms ammunition. U.S. Cartridge is a subsidiary of Olin Industries. It is reported that 67 million rounds were produced.

The McQuay-Norris Manufacturing Company operated the St Louis Core Plant, consisting of 10 acres, for the production of small arms ammunition cores. It is reported that 8 billion cores were produced.

Figure 3, Building Map of SLOP East of Goodfellow Boulevard, is a map of the above mentioned areas. Figure 3 identifies buildings that are explained in Tables I, II, and III, Building and Land Description of McQuay-Norris Area, Plant No. 1 U.S. Cartridge Area, and Plant No. 2 U.S. Cartridge Area.

In 1945, SLOP was deactivated following the end of World War II. Following deactivation procedures, all machines and buildings having explosive hazards were decontaminated by the U.S. Army Corps of Engineers (USACE) in accordance with regulations of the Safety and Security Branch, Office of Ordnance, Chicago, Illinois. The decontamination included machines being scrapped as well as those being disposed of through other channels. All special equipment peculiar to the production of small arm ammunition was declared excess and recommended for scrapping. All multipurpose equipment was reported to the Reconstruction Finance Corporation for ultimate disposition. Over 14 million pounds of scrap material were moved from the plant.

The War Department Supply Bulletin, SB 5-52, July 1945, Decontamination Procedures, outlined the procedures for decontamination or discontinuation of operations prior to dismantling, demolition, and alteration. The bulletin further describes the decontamination or discontinuation of plants, equipment, or areas where explosives or toxic materials have been manufactured and in other plants and areas where similar hazards exist. A review of SB 5-52 by an Explosive Ordnance Disposal Officer assigned to Environmental and Safety Division of the US Army Toxic and Hazardous Materials Agency revealed that procedures had changed little from the date of publication to the present. Procedures were stringent, including detailed cleaning with water, steam, or solvents, neutralization of acids, and flashing or burning of contaminated equipment.

Starting in 1945 and continuing until 1951, all property and buildings, except the McQuay-Norris Plant, were used as an administrative center for the Army Service Forces, and were operated as the St. Louis Administration Center.

In 1945, the northern portion of Plant No. 2 U.S. Cartridge Area became the Chevrolet-Shell Division of General Motors Corporation. It operated as a shell plant for the manufacture of 105 millimeter (mm) shells. This area is also known as the St. Louis Army Arsenal Plant (SLAAP). The facility operated between 1944-1945, 1951-1954, and 1966-1967 before it was placed on inactive status in 1970. SLAAP is still owned by DoD but is not part of this survey.

In 1951, SLOP was again placed in active status in response to escalation of the Korean conflict. Ordnance production of ammunition and cores began again and was conducted by McQuay-Norris and U.S. Cartridge in the same areas of the installation that they were previously located.

In 1957 SLOP was placed on an inactive status.

2.3 Present Ownership.

A Real Estate appraisal report has been prepared which documents the ownership history of the McQuay-Norris Area, Plant No. 1 U.S. Cartridge Area, and Plant No. 2 U.S. Cartridge Area. In the 1960s, much of SLOP was considered excess. To facilitate the transfer of the property much of the site was divided into parcels. Figure 4, Parcel Map of SLOP, outlines the parcels and shows the

present major known landowners and/or businesses. In some cases, a parcel was subdivided and there are several different owners as shown in Table IV, Current Property Owners and/or Tenants.

For clarification, Central States Diversified occupies a warehouse on the former SLOP (north of parcels 3, 4, and 6) in an area that has not been given a numbered parcel. Further, Parcel 10 is Parking Lot "A", which is west of Goodfellow Boulevard has not historically been linked to SLOP, is not part of this report (See Figure 2).

Parcels 11, 12, 13, 14, and the southwest portion of 8 are still owned by the federal government through the Army Reserve and General Service Administration (GSA). These agencies are responsible to addressing all environmental issues on property that they manage.

3.0 Previous Investigations and Reports

The following discussion briefly summarizes previous investigations and their results. The items are listed in chronological order.

3.1 SLOP Air and Stream Pollution Message, December 1954

A message was sent to the Commander of Ordnance Ammunition Command, Joliet, Illinois, dated 17 December 1954, which described controls on air and stream pollution at all of SLOP. Pollution control in our focus area includes: Roto-clone separators at Building 123 collected powder contaminated air, wash water was collected in sumps which were cleaned at periodic intervals, sumps were connected to the city sewer lines. See Appendix A, Air and Stream Pollution Message of 17 December 1954.

3.2 SLOP Decontamination Status, January 1962

A message was sent from the Commander of Ordnance Ammunition Command, Joliet, Illinois, to the Kansas City District USACE dated 31 January 1962, which described building cleanup done at SLOP. It identifies buildings at SLOP that were decontaminated. The message states that "All buildings and equipment have been decontaminated to 3X condition, i.e., all visible explosives and powder removed, flushed with steam and/or hot water, and surfaces brushed and/or wet vacuumed. Sumps and drains cleaned and flushed. Filters burned." The message was applicable to buildings in Parcels 5, 9, and 11 (see Figure 4). Currently all the buildings on Parcels 5 and 9 have been removed. It is believed most of the buildings in Parcel 11 are still original.

3.3 Installation Assessments December 1979 and July 1987 Update

In December 1979, the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) prepared an Installation Assessment of SLAAP in 1979. This assessment focused on that portion of SLOP that is also identified as the Chevrolet-Shell Division of General Motors Corporation. SLAAP is not part of this report. In July 1987, USATHAMA (since renamed Army Environmental Center or AEC) performed an update of the report. The general conclusions of the report are that "No problem areas were identified during the installation assessment. Therefore, it was recommended that USATHAMA not conduct an Remedial Investigation/Feasibility Study (RI/FS) study at SLAAP."

3.4 Survey of Hazardous/Chemical Area No. 2 of the Former SLOP, June 1981

This report is applicable only to the Hazardous/Chemical Area No. 2 or Hanley Area (i.e., west of Goodfellow Boulevard). The conclusions of this report revealed the presence of heavy metal residues

on the interior surfaces of buildings as well as the presence of explosive residues in the floor drains of some buildings.

3.5 Preliminary Assessment of SLOP (EPA ID# MO8210022465), September 1984

This report focused on the Hazardous/Chemical Area No. 2 or Hanley Area (i.e., west of Goodfellow Boulevard). The Preliminary Assessment (PA) references the Environmental Protection Agency's (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Hazardous Waste Sites website (reference <http://www.epa.gov/superfund/sites/cursites/c3mo/>). CERCLIS currently identifies 13 "aliases" or "sites" at SLOP. These aliases are identified in Table V, Various Names or Aliases at SLOP.

3.6 DERP/FUDS Findings and Determination of Eligibility, July 1988

A Findings and Determination of Eligibility (FDE) prepared in July 1988. This document concerned "only on the portion that contains 55.7 acres known as the Mark Twain Industrial Park, which is currently owned by the City of St. Louis, Missouri (Office of Business Development, OBD)". The available real estate information appears to indicate that this area comprises Parcels 5, 6, and 9 (see Figure 4). The City of St. Louis is no longer the owner of the property. The current owners and tenants of these parcels are indicated in Table IV and the ownership history of the parcels are indicated in Table II.

The document made the following conclusion: "Based on the following findings of fact, the site has been determined to be formerly used by DoD. However, the site has been beneficially used by the current owner and there is no evidence of unsafe conditions resulting from DoD use. Therefore, it is determined that an environmental restoration project is not appropriate within the purview of the Defense Environmental Restoration Program (DERP) established under 10 U.S. C. 2701 et. Seq., for the reasons stated above." See Appendix B, Finding of Facts of 27 July 1988

3.7 Real Estate Report, February 1989

This report was prepared by the USACE. The report attempted to track real estate ownership for the entire 329 acres of the original SLOP. Also, the report was accompanied by surveyed drawings of the various parcels that comprised SLOP. Current owners and tenants are listed in Table IV.

In addition, the report indicates that a number of the General Service Administration (GSA) quit-claim deeds contained clauses stating that the DoD "has decontaminated all buildings and equipment to 3X (or XXX) condition; however, portions of the property are subject to contamination from residual explosives or powder which might be found under and around machine bases." The U.S. made no "warranties pertaining to the condition of the land and improvements." In the case of Southwestern Town Lot Corporation (i.e., Parcels 5, 6, and 9), the deed indicated Southwestern Town Lot will "accomplish necessary decontamination." The deeds also contained a "hold harmless" clause. There were no restoration provisions.

Appendix C, Technical Bulletin (TB 700-4) Decontamination of Facilities and Equipment date October 1978, outlines the Army's standard decontamination procedures for equipment exposed to potential ammunition and explosives. Briefly, 3X conditions indicates that explosive material have been removed and cleaned/neutralized from buildings and equipment.

3.8 Site Survey Summary Sheet, 1991

A Site Survey Summary Sheet and FDE were completed in 1991. These documents were prepared exclusively for the McNeil Corporation (presently owned by Lincoln/Pentair Corporation) parcels (Parcels 7 and 9) and the Contico International (presently owned by Newcastle Industries) parcel (Parcel 1). The report indicated that the area occupied by the McNeil Corporation used hazardous and toxic chemicals on site and that the Missouri Department of Natural Resources (MDNR) had a report on the site. A potential DERP-FUDS eligible project was documented for McNeil Corporation Parcel 7. The project was for the removal of Underground Storage Tanks (USTs) which were claimed by the present owners not to have been used by "either the Lincoln/Pentair Corporation or its parent company and prior owners, the McNeil Corporation". The FDE document indicated that the UST project would be eligible for federal funding; however, the USTs were removed by the present owners prior to DoD initiating a project. See Appendix D, Site Survey Summary Sheet of 22 February 1991

3.9 Archives Search Report for SLOP, December 1993

An Archives Search Report (ASR) was conducted for the entire area in December 1993. The purpose of the ASR was to compile information obtained through historical research at various archives and records holding facilities; interviews with individuals associated with the site or its operations; and personal visits to the site. All efforts were directed towards determining possible use or disposal of chemical warfare materials on the site and documenting the existence of Ordnance and Explosive Waste (OEW). Particular emphasis was placed on establishing the chemicals used; the type of munitions or containers; and the quantities and areas of disposal. Information obtained during the process was used in developing recommendations for further actions at the site.

The ASR broke SLOP down into seven (7) unique areas based on a 1960 photograph. Figure 5, 1960 Photograph Review of SLOP, is a map showing all the areas. The areas are summed up below.

- **Projectile Area:** This area consists of a group of buildings used for the storage and production of 105 mm projectiles. The area is part of SLAAP or the Chevrolet-Shell Division and is not part of this report.
- **Area No. 1:** This area consists of manufacturing buildings, powder storage sites, a chemical warehouse and several igloos (igloos are storage buildings for compounds used in ordnance production). Churchill Truck Lines, Ryder Integrated Logistics, and Madison Redevelopment Corporation now occupy the area.
- **Area No. 2:** This area consists of building used for primer manufacturing and bullet assembly. The area is located west of Goodfellow Boulevard and is not part of this report. Not shown on Figure 5.
- **Area No. 3:** This area consists of sites used for explosive scrape storage and bullet burning. Pepsi-Cola Bottling Company now occupies the area.
- **Area No. 4:** This area consists of manufacturing buildings, powder storage sites, and several powder magazines. McNeil Corporation now occupies the area.
- **Area No. 5:** This area consists of manufacturing buildings, powder storage sites, and several bunkers. Gossrau Enterprises, Inc and Madison Redevelopment Corporation now occupy the area.
- **Core Plant Area:** This area consists of three (3) manufacturing buildings. McNeil Corporation now occupies the area.

The ASR reviewed all available photographic documentation and made the following observations:

- No photographs are available for interpretation prior to 1937. A 1937 photograph of the area is clear of any manufacturing facility and no indication of disposal areas are indicated. A vacant field is seen in the area on the 1937 photograph.
- On the 1960 aerial photograph there is no apparent evidence of chemical ordnance disposal. However, there are areas containing numerous igloos throughout the facility.
- On the 1971 aerial photograph, most igloo areas are still present. Area No. 5 is active with numerous truck trailers surrounding the middle igloo. It appears that a docking facility has been established on the north side of the warehouse and the igloo is surrounded by trailers.
- The 1985 aerial photograph indicates that some changes have taken place. The Projectile Area has had no change. In Areas No.1 and 3, the igloos have been razed and replaced by a parking lot and open field. Area No. 2 has several igloos remaining. An open field has been created where there were several igloos. Parking lots and open fields have been created in Area No. 4. The igloos in Area No. 5 have decreased by two and a warehouse has been erected. Throughout the site, former igloo areas have been changed to warehousing space, open fields, or parking lots.

The ASR indicated that SLOP manufactured small arms ammunition (.30 and .50 caliber) armor piercing bullet cores, and 105 mm projectiles. Documents and plant maps indicate that many chemical storage areas were used to hold explosives contained in incendiary and tracer elements of the .30 caliber and .50 caliber bullets. In addition, there were: 4 powder magazines, 5 powder storage areas, 3 primer storage areas, a chemical warehouse, a chemical/bullet burning area, an explosive scrap burning area, a bullet storage area, and an indoor firing range. These areas are roughly indicated on the Figure 6, ASR Map of SLOP.

The report contains a section detailing results of a site visit, which was conducted on November 23, 1993. It recounts visiting each of the areas previously discussed and documents the findings. The results are uniform for each of the areas:

- The areas of former Ordnance Explosive Waste/Chemical Warfare Materials (OEW/CWM) were no longer present, having been demolished and debris removed.
- There was no surficial evidence of OEW/CWM contamination in the areas (where it was observable by the inspection teams).

The conclusion of the report was that "Based on interviews with current property owners and a surface site investigation, there is no evidence suggesting any OEW or CWM contamination remains except in the portion west of Goodfellow Boulevard still owned by DoD". Excluding the Chevrolet-Shell Plant and the Hazardous/Chemical Area No. 2 (also known as the "Hanley Area") the report recommends no further action at Areas 1, 3, 4, 5 and Core Plant of SLOP.

3.10 Revised Site Survey Summary Sheet and Project Summary Sheet, November 1995

This document provides DERP-FUDS programmatic documentation for removal of four (4) potentially polychlorinated biphenyl (PCB)-contaminated transformers from the parcel 7 or the McNeil Corporation property. See Appendix E, Revised Site Summary Sheet or 3 November 1995

The project was authorized and performed in December 1996. The *Final Report Former Saint Louis Ordnance Plant PCB Transformer Disposal* dated February 25, 1997 documents the removal of the four (4) transformers. Work was performed in the last week of December 1996. The Contract Number was DACW41-95-D-0022, Delivery Order #8 with Bay West.

3.11 Project Summary Sheet for PRP Investigation, January 1997

This document was prepared to propose an investigation be conducted to determine DoD potential liability relating to the excavation, removal, and disposal of debris (some debris containing asbestos material) at SLOP. See Appendix F, Project Summary Sheet of 10 January 1997.

3.12 Site Inspection, February-March 1999

Mr. John Ekhoft of the USACE, visited SLOP on February 11, 1999. Each parcel was visited, notes taken, and a photographic record was made. Appendix G, 1999 Photographic Record, contains the photographs from the site visit. Below is a summary of the observations made during the visit (see Figure 4):

3.12.1 Parcel 1

All of the buildings in Parcel 1 appear to be original. The property owned by Contico International in Parcel 1 appears to be original SLOP buildings, but in a badly deteriorated state. This is based upon the observation that the buildings appeared to be of the same apparent age and materials of construction and shape as the original SLOP. There did not appear to be a lot of activity on the site during the site visit.

Also listed, as part of Parcel 1, is the building that appears to be an original bunker. This building may have once been owned and operated as the "Bunker Restaurant." It is now operated as the "House of Peace."

The building location that was once noted as belonging to Gossrau Enterprises is now occupied by a new warehouse apparently owned by Madison Warehouse. This new warehouse covers the former locations of bunkers D and F.

3.12.2 Parcel 2

The larger SLOP buildings remain, but there is a new Madison Warehouse facility over the two old bunker sites. The east half of the original SLOP building may still be used by the Madison Warehouse Corporation, but the western half has two other tenants: BOXTECH Packaging and PM Door Service.

3.12.3 Parcel 3

It appears that a Boeing warehouse occupies the entire facility. It is possible that Boeing leases the site from Madison Warehouse. The west end of the building has a sign which says "BLDG 72". On the east end of the building there is a chain link gate entrance near the General Service Administration (GSA) vehicle maintenance facility labeled "McDonnell Douglas" (Note: Boeing now owns McDonnell Douglas).

3.12.4 Parcel 4

Gateway Press Incorporated presently occupies this site. The site appears to be original SLOP buildings.

3.12.5 Parcel 5

The entire area of Parcel 5 has been cleared of old SLOP buildings. The aerial photograph dated 29 March 1971 still shows the old SLOP buildings. The aerial photograph dated 15 March 1985 shows this area clear of structures.

Parcel 5 now contains two new warehouses. The parcel is occupied by Madison Redevelopment Corporation, Churchill Truck Lines, and Ryder Integrated Logistics. The parcel also has a large paved area for truck trailers.

3.12.6 Parcel 6

The parcel has been completely cleared of old SLOP structures. Pepsi-Cola Bottling Company has constructed all new facilities.

3.12.7 Parcel 7

This parcel appears as the old McQuay Norris Area on a 1957 site plan. Most of the buildings appear to be original with a few additions. The length of Seimers Lane has been shortened because McNeil Corporation (Lincoln Industrial) has constructed a shipping and receiving dock over the old right-of-way for Seimers Lane. This receiving dock connects facilities on the east and west sides of the old Seimers Lane. The buildings to the west did not belong to SLOP according to the records. To the south of Parcel 7 is a Furniture Plus sales warehouse. In a 1991 Project Summary Sheet it states "Fourteen DoD PCB transformers are in beneficial use by McNeil Corporation and are therefore not proposed for removal."

This is the parcel where the MDNR issued a Hazardous Waste Compliance Inspection Report to McNeil Corporation, which identified a number of environmental issues. The report is dated May 25, 1989, and has been previously discussed in this document. The site has also been a subject of UST removal by McNeil Corporation.

3.12.8 Parcel 8

An Army Reserve unit sits on the southwestern half of the parcel and still maintains the property. All the buildings in the eastern part of the parcel appear to be original and abandoned.

The eastern and northwestern part of the parcel is overgrown with trees and vegetation. The eastern half of the parcel contains the foundation of one building, one abandoned dilapidated building, and one old bunker. This area is fenced and appears never to have been beneficially occupied.

3.12.9 Parcel 9

This property appears on a 1957 site map as three bunkers. However, the parcel has been cleared of all old structures. Parking lots and ball fields now cover the area.

3.12.10 Parcel 11

All the buildings on parcel 11 appear to be original. An on-site inspection is necessary to confirm that these are in fact original buildings. GSA occupies the area. Note, a confirmation call made to the Director of the Federal Center, Property Management Center, identified that the two powder storage bunkers west of buildings 102 and 103 have been removed.

3.12.11 Parcel 12

The original SLOP structure has been demolished. The area is now a parking lot for the GSA Vehicle Maintenance Facility. The vehicle maintenance facility or garage is located in parcel 13.

3.12.12 Parcel 13

This appears to be an original SLOP building and is being used by GSA as a Vehicle Maintenance Facility for their fleet.

3.12.13 Parcel 14

The buildings appear to be original. The facility parallel to Planned Industrial Drive is at least partially occupied by US Department of Agriculture (USDA). Note, a confirmation call made to the Director of the Federal Center, Property Management Center, identified that the two powder storage bunkers west of buildings 104 and 105 have been removed.

3.12.14 Central States Diversified Warehouse

Central States Diversified presently occupies this site as a warehouse. The site appears to be original SLOP buildings.

4.0 Survey Questionnaire

On June 3, 1999, USACE sent a survey questionnaire to all available and known parcel owners/users to help identify environmental issues eligible for DoD action. Appendix H, Survey Questionnaire Letter, provides a copy of the letter sent out to known property owners/tenants. Table VI, Survey Questionnaire Responses, summarizes lists the owners/tenants who responded. Below is a summary of the information obtained:

4.1 Parcel 1, Contico International, Inc.

Newcastle Industries is now the owner of the Contico International, Inc. properties. Within the body of the letter it is stated that "Newcastle is not aware of any material adverse impact caused by the U.S. government's previous activities at the Newcastle property."

4.2 Parcel 2, BOXTECH Packaging.

BOXTECH Packaging's response did not indicate any known problems on the site.

4.3 Parcels 2, 3, and 5. Madison Warehouse Corp. & Madison Redevelopment Corp.

The Environmental and Engineering Consulting firm of D.G. Purdy and Associates, Inc. responded to the questionnaire. Salient parts of the response are as follows:

- Throughout the document, D.G. Purdy indicates there was likely previous DoD contamination.
- The response indicates that "multiple environmental assessments have been conducted that identified concern for environmental contamination by previous owner, particularly the former DoD activities." [Note: USACE is not aware of any additional documents and during a

telephone conversation on October 18, 1999, between Mr. D.G. Purdy and Mr. McStay of the USACE's, a copy of the documents was requested.]

- There is a deed restriction for this site due to non-removal or (sic) asbestos containing materials.
- The response indicates that "a review of documents indicates that the Federal Aviation Command & Troop Support Center is the site of underground storage tanks and leaking underground storage tanks." [Note: A copy of these documents has been requested of D.G. Purdy.]

4.4 Parcel 4, Gateway Press Incorporated

Gateway Press's response did not indicate any known problems at the site.

4.5 Parcel 5, Churchill Truck Lines

Churchill Truck Line's response did not indicate any known problems at the site.

4.6 Parcel 6, Pepsi Cola Bottling Company

Pepsi- Cola Bottling Company's response did not indicate any problems at the site.

4.7 Parcels 7 and 9, Lincoln Industrial Corporation

Lincoln Industrial Corporation's response indicated that the parcel is currently under "EPA Consent Order in Reference to Lincoln Industrial Corporation, TSCA-7-99-0005."

4.8 Parcels 11, 12, 13, and 14, General Services Administration (GSA)

GSA's response carried the following statement: "Per your plot plan Parcels 11, 12, 13, and 14 were operated by Olin Corp. and they manufactured ammunition from 1942 up until 1960s. In the late 60's and 70's this property was completely renovated into office space."

5.0 Findings

Parcels 11, 12, 13, and 14 are still owned by the federal government through the General Service Administration (GSA). This agency is responsible to addressing all environmental issues on property that they manage.

Parcel 8 is currently owned by the Army Reserve and Land Reutilization Authority of the City of St. Louis. The Army Reserve owns and maintains the southwest portion of the parcel. The Army Reserve is responsible for addressing all environmental issues on the property that they manage.

Parcels 5, 6, and 9 (the former Mark Twain Industrial Park) has been cleared of all old SLOP structures and new facilities have been constructed. These areas are no longer owned by the federal government and are being beneficially used by the current owners.

Parcels 1, 2, 3, 4, 7, and the Central States Diversified property contain many original SLOP building, some new warehouses, and building additions. These areas are no longer owned by the federal government and are being beneficially used by the current owners.

5.1 Buildings and Soils

Many of the former SLOP original buildings still exist and are in operation; however, most of the buildings in Parcels 2, 5, 6, 9, and 12 have been demolished and the grounds cleared away. The ASR (Section 3.9) indicated some potential concern (i.e., powder magazines, chemical storage, and chemical/bullet burning) for the areas in Parcels 5, 6, and 9; however, now that these areas have been cleared, any original contamination may have been removed.

The ASR (Section 3.9) identified five (5) powder storage areas in Parcels 3, 11, and 14, that may still exist. A follow up phone call to the Director of the Federal Center, Property Management Center (Mr. Michael Crocker) confirmed that four (4) powder storage areas in Parcels 11 and 14 were removed in the late 1970 and converted to parking lots. The one (1) remaining powder storage area still exists in Parcel 3.

5.2 Site Surveys and Questionnaires

Site surveys completed to date have not identified any problems. Survey questionnaires did not indicate any problems except for the comments generated by D.G. Purdy for Parcels 2, 3, and 5 (See Section 4.3). Additional supporting documentation has been requested from Mr. Purdy.

6.0 Recommendations

6.1 Buildings Status

The SLOP Decontamination Status of January 1962 (See Section 3.2) and the Archives Search Report of December 1993 (See Section 3.9) indicated buildings on Parcels 5, 6, 7, 9, 11, and parts of 1 and 2 have been cleaned/decontaminated to 3X levels. Extensive reuse of all other buildings, on the remaining parcels of SLOP since its closure in 1957, suggest that a recommendation of further sampling is not warranted.

USATHAMA's Installation Assessment of SLAAP dated December 1979 and the Update dated July 1987 (See Section 3.3) support his recommendation. The general conclusion of these USATHAMA's reports are that no problem areas could be identified, therefore, a Remedial Investigation/Feasibility Study is not recommended for SLAAP.

6.2 PRP Search

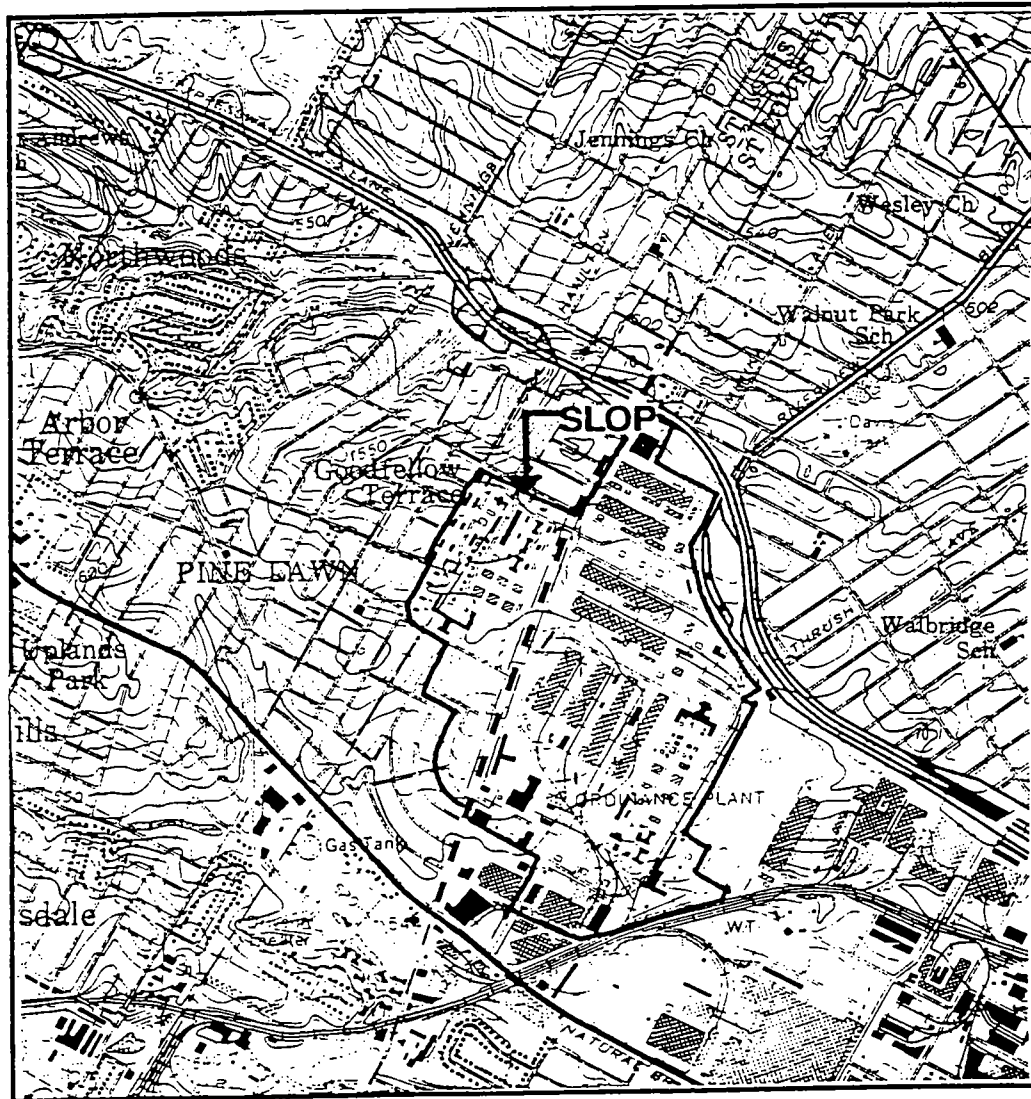
SLOP was operated as a GOCO plant and has been occupied by subsequent owners/operators since DoD vacated the property in 1957. The federal government and private parties have beneficially used SLOP property since its deactivation. Many of the original structures have been removed and new industrial and non-industrial facilities have been built. Structures that do remain have been converted to offices and warehouses. The former SLOP property now operates as an industrial park. The various facilities run equipment and operate machinery that have their own environmental concerns.

Due to the extensive reuse of the former SLOP property, a Potential Responsible Party (PRP) project is recommended, as authorized per the Defense Environmental Restoration Project – FUDS guidance manual, to determine industrial activities at the former SLOP.

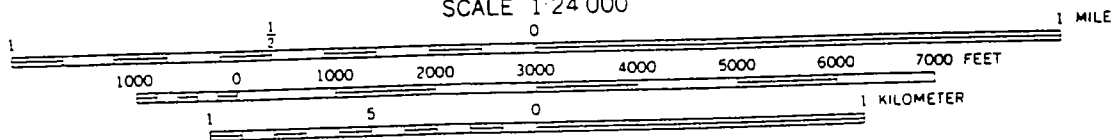
LIST OF FIGURES

FIGURE 1

VINICITY MAP
ST. LOUIS ORDNANCE PLAN



SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

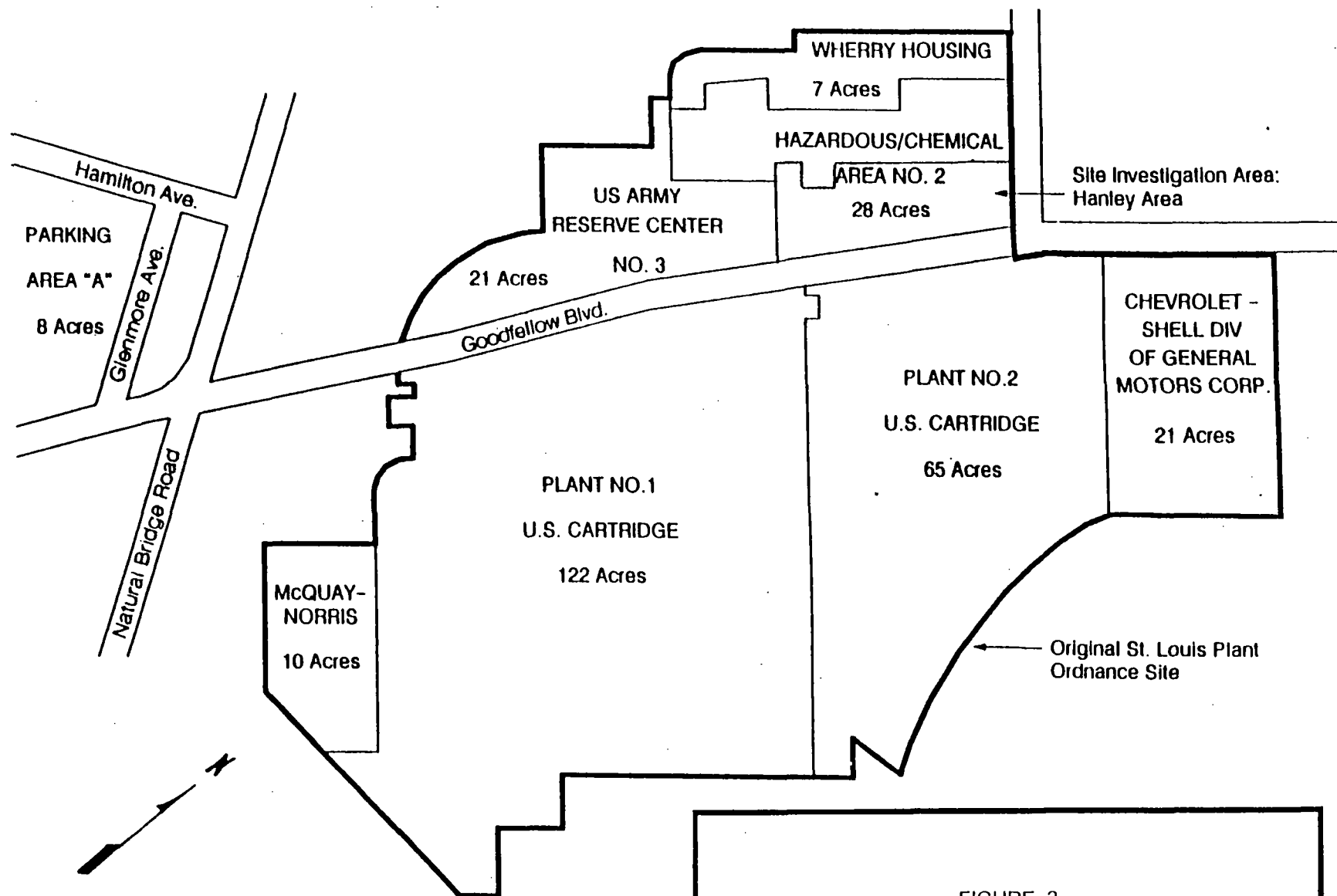


FIGURE 2
SITE MAP
ST. LOUIS ORDNANCE PLAN

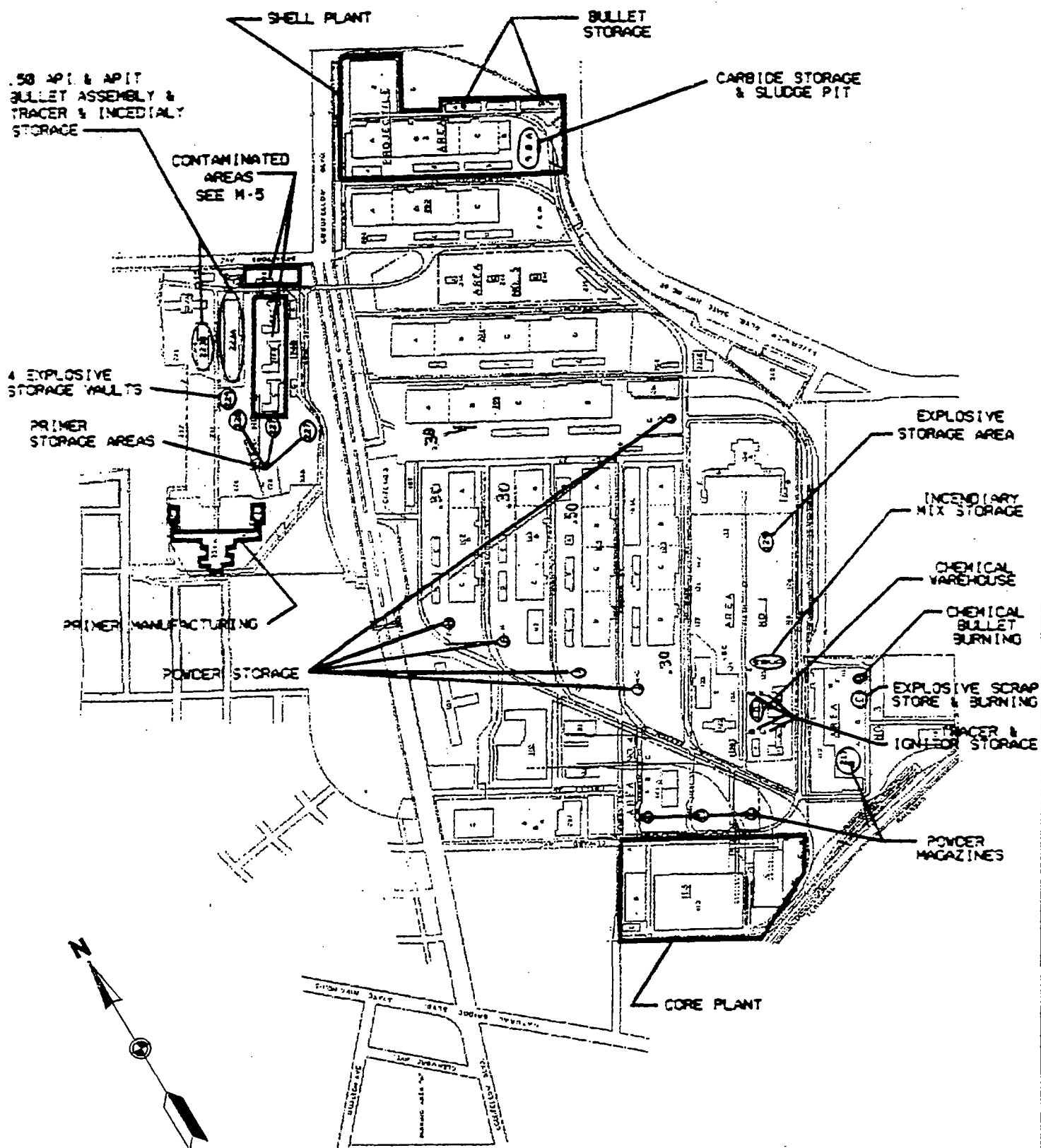


FIGURE 6

ARCHIVES SEARCH MAP
ST. LOUIS ORDNANCE PLAN

NOT TO SCALE

LIST OF TABLES

Table I
Building and Land Description of McQuay-Noris Area

Parcel	Building Number	Building Area	Historical Use Description	Ownership History	Remarks (Previous INPRS; site inspections; present use; and miscellaneous)
7	113		Core Plant	McNeil Corp (parent company of Lincoln/Pentair) (07/01/65 to present).	<p>INPR completed in January 1991 (B07M0001000) for Parcel 7 (McQuay-Norris), Parcel 9, and Parcel 1 (Contico). It was determined that an UST located on the McNeil (Lincoln-Pentair, Parcel 7) property was eligible for DERP-FUDS funding; however, it was removed by the property owner prior to DOD action. In November 1995 the INPR was amended upon discovery of four (4) PCB transformers on the McNeil (Lincoln-Pentair, Parcel 7) property. Bay West removed the transformers in December 1996 (Contract DACW41-95-D-0022, D.O. #8).</p> <p>Lincoln Industrial Corp. responded to June 99 USACE questionnaire and identified no items requiring DOD investigation; however, they did acknowledge that Lincoln Industrial is currently under an EPA Consent Order (reference TSCA-7-99-0005).</p>
		A B	Guard Houses		
		C	Warehouse		
		D	Furace Buildings		
		E	Laboratory		
		G H	Storage		
		J	Pump House		
		K L	Guard Houses		

Table II
Building and Land Description of Plant Area No.1 U.S. Cartridge Area

Parcel	Building Number	Building Area	Historical Use Description	Ownership History	Remarks (Previous INPRS; site inspections; present use; and miscellaneous)
5	108			Churchill Truck Lines (01/05/98 to present); Churchill Redevelopment Corps (04/24/90 to 01/05/98); Cass Bank & Trust UTA of Anheuser-Busch Co. (11/01/89 to 04/24/90); Planned Industrial Expansion Authority of City of St. Louis (09/13/79 to 11/01/89); Southwestern Town Lot Corp (09/30/65 to 09/13/79); USA (09/30/65).	INPR and Negative Declaration Completed for Parcel 5 (aka Mark Twain Industrial Park, Number B07M0001001, completed June 88). Churchill Truck Lines (west part of Parcel 5) responded to USACE June 99 questionnaire and identified no items requiring further DOD investigation.
		A	South Primary Substation		
		B	North Primary Substation		
		C D	Distribution Substation		
	118				
		A B	Tracer & Incendiary Prep Mix		
		C	Hot Scrap Storage		
	119				
		A	Machine Shop		
		B C E F	Tracer & Igniter Storage		
		D	Chemical Warehouse		
		G H	Barricades		
	120		Laboratory		
	122				
		A	Cafeteria		
		B	Ordnance Inspection & Serv Bldg		
	123		Tracer Charge Bullet Manufacturing		
		A	Compressor Bldg		
		B	Cooling Tower		
		C	Scrap House		
		E	Inspection & Storage		
	124	A C	Transfer of Igniting Explosives		
		B	Underground Storage		
		D	Barricades		
	125	A B C D	Incendiary Mix Storage	Madison Redevelopment Corp (05/15/91 to present); Planned Industrial Exp Authority of City of St. Louis (09/13/79 to 09/30/65); Southwestern Town Lot Corp (09/30/65 to 09/13/79); USA (09/30/65).	The firm of D.G. Purdy responded to the June 99 USACE questinnnaire for all of Madison Warehouse/Redevelopment (Parcels 2, 3, &5). Their response was extensive. They noted the past legal action regarding the ACM dumping and also the possibility that DOD contamination may exist at the site. However, their remarks did not specifically identify any location or type of contamination. During a site inspection by John Ekhoﬀ, USACE, in Feb 99, the entire area of Parcel 5 had been cleared of old SLOP Buildings. The aerial phot dated 03/29/71 still shows the old SLOP Buildings. The aerial phot dated 03/15/85 shows this area clear of structures. Parcel 5 now contains two new warehouses for Madison, a small facility for Ryder and a large paved area for truck trailers.
		E	Barricades		
	126	A THRU H	Primer Storage		
		J	Barricades		
	127	A THRU H	Primer Storage		
		J	Barricades		
	128	D H	Barricades		
		B C K L Q R	Infra Red Primer Dryer		
		E F	Storage		
		G	A.P. I. Pelletizing		
		M N O	Explosive Weighing		
		P	Inspection Office		
	129	A B C D	Explosive Storage		
		E	Barricades		
	134	A THRU F	Primer Manufacturing		
		G	Storage		
		H	Refrigerator Unit		
		J	Cooling Tower		
		K L	Scrap House		
	142		Wet Primer Storage & Barricade		

Table III
Building and Land Description of Plant Area No.2 U.S. Cartridge Area

Parcel	Building Number	Building Area	Historical Use Description	Ownership History	Remarks (Previous INPRS; site inspections; present use; and miscellaneous)
1	201		RR Car Scale B Bldg	Newcastle Industries (formerly named Contico);Contico International, Inc. (07/17/84 to present); Schlueter Manufacturing (09/01/65 to 07/17/84); GSA (09/01/65).	Response received from legal firm of Thompson Coburn on USACE June 3, 99, questionnaire. The letter states that "Newcastle is not aware of any material adverse impact caused by the US Government's previous activities at the Newcastle property".
	203				
		A B C	Vacant Bldg		Newcastle/Contico may have leased parts of parcel to Puro Chemical. Various tanks being stored at south end of parcel and marked sulfuric acid, hydrochloric acid, and base.
		D	Vacant Bldg		January 1990 INPR Found no evidendc of any DOD generated HTW or Hazardous conditions on Contico Property.
		E	Vacant Bldg		Based upon a site inspection by Mr. John Ekhoﬀ, USACE, in Feb 99, the buildings on this parcel appear to be original, although in deteriorated condition.
		F	Vacant Bldg		
		G	Vacant Bldg		FAA Transmitter located SE of Old Bldgs F, G, & H.
		H	Vacant Bldg		
		J	Vacant Bldg		
		K	Vacant Bldg		
	208				
		A	West Primary Substation		
		B	East Primary Substation		
		C D	Distribution Substation		
	No Buildings-Land Only			Newcastle Industries (formerly named Contico);Contico International, Inc. (07/17/84 to present); Schlueter Manufacturing (09/01/65 to 07/17/84); GSA (09/01/65).	
	No Buildings-Land Only			Gossrau Enterprises, Inc. (10/15/91 to present); Normandy Bank (09/05/91 to 10/15/91); Robert E. & Dorothy A. Laposky (11/29/84 to 09/05/91); Contico International, Inc. (07/17/84 to 11/29/84); Schlueter Manufacturing (09/01/65 to 07/17/84); GSA (09/01/65).	

Parcel	Building Number	Building Area	Historical Use Description	Ownership History	Remarks (Previous INPRS; site inspections; present use; and miscellaneous)
2	214			Madison Redevelopment Corp (07/17/96 to present); Planned Industrial Expansion Authority of City of St. Louis (04/23/80 to 07/17/96); Madison Warehouse Corp (06/30/75 to 04/23/80); Connecticut Mutual Life Insurance (02/11/75 to 06/30/75); Max J. Doppelt, Sgl by E. William Berfeld,	During a site inspection by John Ekhoﬀ, USACE, in Feb 99, the larger SLOP buildings remain, but there is a new Madison Warehouse facility over the two old bunker sites.
		A C E	Powder Magazines		
		B D F	Barricades		USACE Questionnaire response prepared by D.G. Purdy, law firm. Document also states the following: "A review of documents indicates that the Federal Aviation Command & Troop Support Center is the site of underground storage tanks and leaking underground storage tanks."
	215		Transfer Dock		
	204			Madison Warehouse Corp. (06/30/75 to present); Connecticut Mutual Life Ins. (02/11/75 to 06/30/75); Max J. Doppelt Sgl by E. William Berfeld, Jr., Sub Tr U/F (12/05/69 to 02/11/75).	Boxtech Packaging (Boxtech Packaging, Inc. responded to USACE quationnaire. They are renting/leasing from Madison Warehouse Corp. No significant information identified in the response.)
		A B C D	Vacant Bldg		
		E	Vacant Bldg		
		F	Vacant Bldg		PM Door Service.
		G	Vacant Bldg		
		H	Vacant Bldg		Building all bricked up.
		J	Vacant Bldg		
		K L	Vacant Bldg		
	238		Motor Truck Scale & Scale House		
3	205			Madison Warehouse Corp. (11/30/89 to present); Goodfellow Realty Co. (03/23/66 to 11/30/89); Rexall Drug & Chemical Co. (09/30/65 to 03/23/66); USA (09/30/65).	During a site inspection by John Ekhoﬀ, USACE, in Feb 99, all the buildings n Parcel 3 appear to be original. Currently it appears the buildings are occupied by Boeing Storage Facility (under lease from Madison Warehouse?).
		A B C D	.30 Caliber Production		
		E	Loading		
		F	Primer Insert		
		G	Powder Canning		
		H	Barricade		
		J	Powder Storage		
		K L	Solvent & Lacquor Storage		
	No Buildings-Land Only			Madison Redevelopment Corp. (04/12/95 to present); Planned Industrial Expansion Authority of City of St. Louis (09/13/79 to 04/12/95); Southwestern Town Lot Corp. (09/30/65 to 09/13/79); USA (09/30/65).	

Parcel	Building Number	Building Area	Historical Use Description	Ownership History	Remarks (Previous INPRS; site inspections; present use; and miscellaneous)
6	116		Salvage Building	Pepsi-Cola Bottling Co. (03/14/96 to present); Planned Industrial Expansion Authority of City of St. Louis (12/18/92 to 03/14/96); Union Seventy Partnership f/k/a G.M. Plant Properties (12/18/92); Southwestern Town Lot Corp.	Pepsi Cola Bottling Co. responded to USACE-KCD June 99 questionnaire and identified no items requiring DOD investigation. During a site inspection by John Ekhoft, USACE, in Feb 99, it appears all of the original SLOP structures have been removed. Pepsi Col has constructed all new facilities.
	117		Proof house		
	216		Salvage Building		
	217		Hand Fire Test House		
		A	Powder Magazine	Redevelopment Corp. (04/08/94 to present); Planned Industrial Expansion Authority of City of St. Louis (04/08/94); Union Seventy Partnership f/k/a G.M. Plant Properties (08/11/89 to 04/08/94); Planned Industrial Expansion Authority of City of St. Louis (08/11/89); Clark - G.M. Redevelopment (03/16/89 to 08/11/89); HLC Properties a/b/a Clark Properties (11/10/88 to 03/16/89); Southwestern Town Lot Corp. (10/22/69); The Pullman Company (02/06/69); USA (10/01/65).	
		B	Barricades		
	Land only (no buildings)		Narrow strip of land bordering Riverview Boulevard		
Bldg 242	242	NA	Warehouse	Central States Diversified.	SLACS-SLOP Warehouse INPR B07M0016600. On Feb 26, 1962 GSA reassigned 3.99 acres to the St. Louis Area Support (SLOP Warehouse Building No. 242). The building, constructed in 1958 was used as general purpose warehouse for storage of office supplies, surplus sales area and storage of Army Reserve Supplies. The site also included a firing range-burning area. On Oct 1, 1972 the site was reported excess to GSA and conveyed by Quitclaim Deed to Central States Diversified, Inc. During a site inspection by John Ekhoft, USACE, it appears the building is still the one constructed on/about 1958.
8	207			Land Reutilization Authority (01/16/97 to present); George P. Goldstein Trust/Kenneth W. Goldstein (05/04/66 to 01/16/97).	An Army Reserve unit sits on the southwestern half of the property. The eastern half and a small strip on the north edge appear to be abandoned. The eastern half is overgrown with trees, contains the foundation of one building, one abandoned dilapidated building, and one old bunker. It appears that this area was never received into beneficial occupancy. Abandoned Parcel; "asbestos" house on property in dilapidated condition.
		A	Powder Magazine		
		B	Barricade		
		E	200 yard Target House		
		F	Observation Room		
		G	Penetration Room		
9		H	200 yard Target House	McNeil Corp (07/06/76 to present); Southwest Town Lot Corp (10/01/65 to 07/06/76); USA (10/01/65).	This property originally appeared to consist of three bunkers; however, during a site inspection by John Ekhoft, USACE, in Feb 99, the parcel had been cleared of all old structures. Parking lots and a ball field now cover the area.
		J	50 yard Target House		
	114				
		A C E	Powder Magazines		
		B D F	Barricades		
	141		Propane Tanks		
		A	Vaprizer Building		
		B	Air Compressor Building		
		C	Booster Pump Station		
		D	Gas Detector Eqt. Bldg		

Parcel	Building Number	Building Area	Historical Use Description	Ownership History	Remarks (Previous INPRS; site inspections; present use; and miscellaneous)
11	101		Administration Building	United States of America	General Services Administration (GSA) responded to the USACE-KCD June 99 questionnaire. They noted that "Parcels 11, 12, 13, and 14 were operated by Olin Corp. and they manufactured ammunition from 1942 up until 1960's. In the late 60's and 70's this property was completely renovated into Office Space." GSA identified no other items requiring DOD investigation. United States Department of Agriculture (USDA) occupies at least part of the buildings on Parcel 14.
	102				
		A B C	.30 Caliber Production		
		D	Loading		
		E	Primer Insert		
		F	Powder Canning		
		G	Barricade		
		H	Powder Storage		
		J K	Solvent & Lacquer Storage		
	103	A B C	.30 Caliber Production		
		D	Loading		
		E	Primer Insert		
		F	Powder Canning		
		G	Barricade		
		H	Powder Storage		
		J K	Solvent & Lacquer Storage		
14	107		Personnel Bldg and Guard Hdqts	United States of America	General Services Administration (GSA) responded to the USACE-KCD June 99 questionnaire. They noted that "Parcels 11, 12, 13, and 14 were operated by Olin Corp. and they manufactured ammunition from 1942 up until 1960's. In the late 60's and 70's this property was completely renovated into Office Space." GSA identified no other items requiring DOD investigation. United States Department of Agriculture (USDA) occupies at least part of the buildings on Parcel 14.
	110		Tool and Gage Shop		
	111		Boiler House		
	122				
		A	Cafeteria		
		B	Ordinance Inspection		
	104				
		A B C D	.50 caliber production		
		E	Loading		
		F	Primer Insert		
		G	Powder Canning		
		H	Barricade		
		J	Powder Storage		
		K	Vehicle Maintenance		
		L	Acid Storage		
	105	A B C D	.30 Caliber Product		
		E	Loading		
		F	Primer Insert		
		G	Powder Canning		
		H	Barricade		
		J	Powder Storage		
		L	Warehouse and Kitchen		
		M N	Solvent and Lacquer Storage		

Parcel	Building Number	Building Area	Historical Use Description	Ownership History	Remarks (Previous INPRS; site inspections; present use; and miscellaneous)
4	222			Gateway Press, Inc. (04/03/69 to present); Blair Realty Co. (04/13/65 to 04/03/69); GSA (04/13/65).	Gateway responded to the USACE questionnaire, but had no significant information to provide.
		A	Cafeteria		During a site inspection by John Ekhoﬀ, USACE, in Feb 99, it appeared the building is original.
		B	Fire Department		
12	211		Boiler House	USA	During a site inspection by John Ekhoﬀ, USACE, in Feb 99, the original SLOP structure is demolished. The area is now a parking lot for the GSA Vehicle Maintenance Facility. The vehicle maintenance facility (garage) is located in Parcel 13.
13	200		Unknown	USA	GSA Vehicle Service Garage.

TABLE IV	
CURRENT PROPERTY OWNERS AND ORTENANTS	
Parcel	Current Owner
1	House of Peace
1	Contico International, Inc.
1	Gossrau Enterprises, Inc
2	Madison Redevelopment Corporation
2	Madison Warehouse Corporation
2	BOXTECH Packaging
2	PM Door Service
3	Madison Redevelopment Corporation
3	Boeing Storage Facility
4	Gateway Press, Inc
5	Ryder Integrated Logistics
5	Churchill Truck Lines
5	Madison Redevelopment Corp.
6	Pepsi-Cola Bottling Company
6	Redevelopment Corporation.
6	Central States Diversified (CDS) Warehouse
6	Union 76 Reality Partnership
6	DMD Group, Inc
6	Atlantic Basin Iron Works
6	Clark-G.M. Redevelopment
6	McNeil Corporation
7	McNeil Corporation
7	Lincoln Industrial
8	Army Reserve
8	Land Reutilization Authority
9	Lincoln Industrial
9	McNeil Corporation
11	General Service Administration (GSA)
12	General Service Administration (GSA)
13	General Service Administration (GSA)
14	General Service Administration (GSA)
Unspecified	Central States Diversified

TABLE I VARIOUS NAMES OR ALIASES AT THE ST. LOUIS ORDNANCE PLANT	
Alias ID	Alias Name/Address
101	Goodfellow US Army Reserve CNT Area #2
102	Hanley Area #2
103	St. Louis Army Ammunition Plant (SLAAP)
104	SEOP
105	Job Corp Center - St. Louis
106	Plant 1 and 2 Area
107	McQuay/Norris Area
108	U.S. Army 89 th Reg. Support Command (RSC) Area
109	Wherry Housing
110	Hazardous/Chemical Area #2
111	Chevrolet/Shell Div of General Motors Corp
112	U.S. Cartridge
113	St. Louis Ordnance Plant 4300 Goodfellow Blvd St. Louis, MO 63120

Table VI Survey Questionnaire Responses			
Parcel Number	Parcel Owner	Questionnaire Response	Respondent
1	Contico International, Inc. (now Newcastle Industries)	Yes	Thompson Coburn, Attorney-at-Law
2, 3, 5	Madison Redevelopment Corp.	Yes	D.C. Purdy & Associates, Inc.
4	Gateway Printing, Inc.	Yes	Gateway Printing, Inc.
5	Churchill Truck Lines	Yes	Churchill Truck Lines
6	Pepsi Cola Bottling Company of St. Louis	Yes	Pepsi Cola Bottling Company of St. Louis
7, 9	Lincoln Industrial Corp.	Yes	Pentair, Inc.
11, 12, 13, 14	U.S. Government-General Services Administration (GSA)	Yes	GSA Safety Office

APPENDIX A

FINDING OF FACTS OF 27 JULY 1988

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM
FOR FORMERLY USED SITES
FINDINGS AND DETERMINATION OF ELIGIBILITY
ST. LOUIS ORDNANCE PLANT
ST. LOUIS, MISSOURI
PROJECT NO. B07M0001001

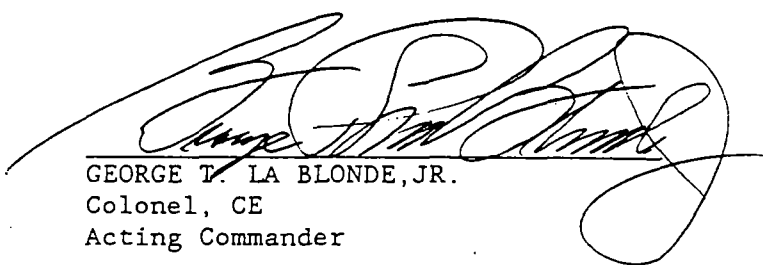
FINDINGS OF FACT

1. The St. Louis Ordnance Plant is located in the Mark Twain Industrial Park off of Interstate Highway 70, 4300 Goodfellow Blvd., St. Louis, Missouri.
2. In January 1941 the Government began construction of the 329.153 acre site in preparation for the United States' involvement in World War II. In the early 1940's 322.080 acres were acquired in fee, 0.035 acres in permanent easements, and 7.038 acres in licenses by direct purchases and condemnation. Although the Government acquired 329.153 acres in fees, permanent easements, and licenses, this determination focuses only on the portion that contains 55.6831 acres known as the Mark Twain Industrial Park, which is currently owned by the city of St. Louis, Missouri (Office of Business Development, OBD).
3. The subject property is part of the former Army Ammunition Plant which produced and stored small arms munition. At various times in the plant's history, the DOD's Mission changed. During the United States' involvement in World War II, the plant was used for manufacturing, testing, and storing .30 caliber and .50 caliber cartridge components. At the end of World War II the plant was deactivated until the beginning of the Korean War in 1951. During this inactive period, much of the plant was modified for the manufacturing of 105mm shells. The plant was again deactivated in 1954 after the Korean War and much of the property was declared surplus. Based upon historical documents, the subject site of 55.6831 acres was primarily used for inert chemical storage (which was contained in concrete bunkers), an indoor test firing range which consisted of two building, and a cup and anvil building. The actual purpose or use of this building is not clear; it was probably used as a small foundry.
4. The General Services Administration declared the subject property excess in October 1961, and on 30 September 1965 the United States of America (acting through GSA) conveyed the subject site, originally consisting of 55.6 acres, to the Southwestern Town Lot Company of St. Louis, Missouri by quitclaim deed. In 1979 ownership passed from the Southwestern Town Lot Company to the city of St. Louis, Missouri by Warranty Deed, dated 28 August 1979.
5. As of this date, the city in conjunction with the state has improved the property for the purposes of business/economic development. All previous buildings/structures have been demolished and removed. Improvements in the form of Municipal utilities have been added and the site is gently sloped for drainage and covered with native grasses. There is no evidence or history of hazardous materials being released, spilled, or disposed of on this portion of the former St. Louis Ordnance Plant (ref. EPA Region VII Preliminary Assessment, dated 2 October 1984).

DETERMINATION

Based on the following findings of fact, the site has been determined to be formerly used by DOD. However, the site has been beneficially used by the current owner and there is no evidence of unsafe conditions resulting from DOD use. Therefore, it is determined that an environmental restoration project is not appropriate within the purview of the Defense Environmental Restoration Program (DERP) established under 10 U.S.C. 2701 et seq., for the reasons stated above.

27 JULY 1988
Date



GEORGE T. LA BLONDE, JR.
Colonel, CE
Acting Commander

APPENDIX B

**TECHNICAL BULLETIN (TB 700-4) DECONTAMINATION OF FACILITIES AND
EQUIPMENT DATED OCTOBER 1978**

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

DECONTAMINATION OF
FACILITIES AND
EQUIPMENT

HEADQUARTERS, DEPARTMENT OF THE ARMY

ATCH 2

OCTOBER 1978

CHAPTER 2

DECONTAMINATION OF FACILITIES AND EQUIPMENT

2-1. General. This chapter contains definitions, policies, responsibilities, objectives, and general safety requirements associated with decontamination operations.

2-2. Definitions. The following definitions apply to this bulletin:

a. *Contamination.* The presence of explosives/explosive residue in, on, or about equipment, facilities, and real estate that have been used in or exposed to explosives operations.

b. *Decontamination.* The partial or complete removal, neutralization, or destruction of explosives/explosive residue by flashing, steaming, neutralization, or other approved desensitizing methods. Sensitive analytical equipment can be decontaminated by chemical decomposition when small quantities (28 grams or less) of contaminants are involved and the decontamination process is performed by trained personnel.

c. Degrees of decontamination will be designated as follows:

(1) X—A single X indicates the facilities or equipment have been partially decontaminated. Further decontamination processes are required before facilities or equipment are moved or any maintenance, repair, etc. is performed. This degree would generally be applied to facilities or equipment that have been subjected to routine decontamination performed by an operator on a piece of equipment, room, bay, or building at the close of the workday.

(2) XXX—Three Xs indicate the equipment or facilities have been examined and decontaminated by approved procedures and no contamination can be detected by appropriate instrumentation, test solutions or by visual inspection on easily accessible surfaces or in concealed housings, etc. and are considered safe for the intended use. Items decontaminated to this degree can not be furnished to qualified DOD or Industry users or be subjected directly to open flame (cutting, welding, high temperature heating devices), or operations which generate extreme heat, such as drilling and machining unless the following two conditions are met:

(a) It is determined that decontamination to the XXXXX level will destroy the usefulness of the item; and,

(b) Decontamination to a degree less than XXXXX in combination with administrative and technical safeguards will eliminate risk of injury. As a minimum, an approved SOP (setting forth the specific operational limitations, precautions to be observed, and monitoring necessary to assure safety) will be available and decontamination will be performed under the direction of the Certifying Official (see para 2-3f).

(3) XXXXX—Five X's indicate the equipment or facilities have been completely decontaminated, are free of hazard and may be released for general use or to the general public.

(4) 0—A0 (Zero) indicates the item, although located in a contaminated area, was never directly exposed to contamination.

2-3. Policies. a. Standing Operating Procedure (SOP) will be prepared locally for each specific decontamination operation. Decontamination procedures contained in chapter 3 of this bulletin are intended to provide general guidance and do not negate the requirement for a locally developed SOP.

b. All standby contaminated items that will remain in place or in storage at the installation/activity will be decontaminated to a minimum of XXX degree to make them safe for maintenance by experienced personnel.

c. All contaminated items that will be used for the same or similar purpose, and which are relocated or transferred to another segment within the installation/activity, transferred to a qualified government installation/activity, or furnished to a qualified user within industry will be cleaned of hazardous contaminants to a minimum of XXX degree before moving, to make them safe for handling, transport and use by experienced personnel. "Qualified" is used as a condition to restrict locations to which an item can be transferred and attests to the awareness by the recipient of the potential hazard represented by the contaminant(s) involved. These items will not be transferred to locations/areas outside the contaminated area, i.e. into the station supply, stock control and storage departments, etc. or the Defense Property Disposal Office without the written approval of the commander or his designated agent.

d. All contaminated items planned for release to the general public will be decontaminated to the

real property will comply with the requirements of this bulletin, DOD Directive 4156.6, and AR 405-90.

s. A contaminated item which would lose its usefulness if subjected to procedures for complete decontamination may be worked on in accordance with an approved SOP established for each situation as it arises.

t. Materiel which by nature of its use or intended use could be contaminated or contain a contaminant and which is to be transferred to or from laboratories, to offices, to shops, to or from storage, to disposal or which remains in place for testing, modification, use in displays or models, will either be decontaminated or handled in accordance with specific handling instructions developed for the materiel involved. Examples of materiel involved are:

- (1) Commodity containers/tanks used for flammable or toxic materials.
- (2) Munitions and associated subcomponents.
- (3) Radioactive components.
- (4) Test fixtures.

u. Material/materiel which is a commodity in production will be handled in accordance with approved SOP which provide for alternate controls of these materials/materiels, such as inspection and certification by product/quality assurance personnel.

v. Items decontaminated to a XXX degree may be transported in Government vehicles or vehicles under Government control. Items decontaminated to a X degree may be transported within the ammunition restricted area in government vehicles or vehicles under Government control only when it is necessary to move them to a location where a XXX level of decontamination can be achieved. This necessity to move and the movement precautions to be taken must be approved by the individual designated as Certifying Official in paragraph f above.

w. Items decontaminated to a XXX degree will not be worked on with open flame, high temperature heating devices or devices which when used generate heat, due to friction of rubbing or cutting (e.g. hand or power drills and saws, lathe operations, powered wire brushing) without specific written approved SOP.

x. Items placed in standby or transferred to another location will be marked with conspicuous yellow (black will be used on yellow surfaces) painted "X's" or "O" as appropriate. Exception: Material/materiel outlined in n, o and v above; items being serviced, tooled-up or repaired in place; and items in or from a noncontaminated area will not be marked.

y. Items that have been decontaminated, inspected, and marked in accordance with criteria in effect prior to implementation of this bulletin will not be reinspected and remarked solely for compliance with this regulation. Item(s) being processed for shipment will be reinspected, remarked, and retagged in accordance with this bulletin.

2-4. Responsibilities. a. Commanders of Activities covered by this bulletin are responsible for compliance with all stated provisions and for preparation of detailed decontamination SOP's as required.

b. Director, DARCOM Ammunition Center, is responsible for maintaining this bulletin and providing assistance in the implementation thereof.

2-5. Objectives. The primary objective of this bulletin is to promote the safeguarding of lives of personnel and protection of property while conducting decontamination operations.

2-6. General Safety Requirements. a. All personnel performing decontamination operations must be thoroughly familiar with their duties and hazards involved.

b. Personnel performing decontamination operations must be under medical surveillance program outlined in AR 40-5.

c. Personnel must be limited to the number actually required to perform the operations safely; however, personnel involved in decontamination of hazardous materials shall not work alone. At least one other person should be within voice communication distance.

d. Areas in which decontamination is in progress should be restricted to necessary traffic and equipment.

e. Unauthorized flame-producing devices must not be permitted in decontamination work areas.

f. Operators must be equipped with protective clothing, gloves, goggles, face shields, respirators and boots as required.

g. Fire extinguishers and first aid kits must be available in close proximity to operations.

h. Vehicles and radio/wire communication equipment must be available for immediate use by operating personnel.

i. Adequate wash rooms and showers are to be available for personnel. Eye lavage and deluge showers are required in mixing rooms of acid or base solutions and at washout sites.

j. Hand tools required must be of nonsparking material.

k. Firefighting personnel shall be notified of the operations being conducted.

l. Only approved type vehicles and other powered equipment will be used in the decontamination area.

m. Flame producing devices such as oxyacetylene torches, electric welders and blow torches must not be used before decontamination due to the possibility of initiation of explosive material remaining in a confined space.

n. High temperature and rough handling must be avoided to prevent explosive accidents.

o. Steam cleaning should be accomplished prior to applying penetrating oil to nuts and bolts. Friction

ditional heat must be avoided. Be. e attempting to
loosen nuts. penetrating oil must be applied to the
contacting surfaces. Sufficient time must be allowed
for the oil to penetrate within the threads before at-

tempting to separate the parts. A second applica-
tion is recommended. This procedure is mandatory
prior to removing nuts or bolts whenever contami-
nation exists.

§ — —

—

CHAPTER 3

DECONTAMINATION PROCEDURES

3-1. General. a. The procedures described herein are general in nature and require augmentation by an approved SOP for each specific decontamination operation. Exact requirements for each specific decontamination must be detailed in the SOP for the operation.

b. Specialized decontamination procedures are required for radioactive materials, toxic substances, chemical agents/munitions/equipment, pyrotechnic compositions, foreign ammunition, experimental materials and degraded reactive materials. SOP's for these items will be developed in accordance with applicable publications. Technical assistance in development of SOP's is available from the appropriate DARCOM materiel readiness commands.

3-2. Equipment Contaminated with Acid Only: a. All equipment such as tanks, pipes, valves, and fittings which have contained acid, but no explosives material, should be drained thoroughly, opening pipes at flanges where necessary; valves should be disassembled and packing removed. This equipment should then be washed first with water followed by a wash with 7% soda ash (sodium carbonate) solution. Soda ash will be employed in solution only. It is recommended that after neutralizing, a solution of three percent soda ash be retained in the pipe or equipment for approximately 24 hours. Since the action of acid on metal may generate explosive gas mixture, flame and spark must be avoided. Brick lined tanks and equipment will be excluded from neutralizing procedures when equipment is to be placed in standby status.

3-3. Equipment Contaminated with Acids and Explosives. a. All equipment which has contained explosives material should be thoroughly washed with hot water, then steam cleaned. Equipment to be sold for scrap must be flashed (subjected to a hot fire to destroy explosive material). Flashing is considered to be the most effective method for destroying explosive materials. Solvent, steaming, and swabbing methods are considered effective only when complete inspection can be given all surfaces of equipment to assure that decontamination is complete. If however, the equipment is to be placed in standby condition for possible subsequent use in explosives operation, flashing in addition to thorough inspection is not required. Equipment or material which

has been used in explosive operation and may be contaminated, will be inspected and decontaminated and properly marked and tagged before removal or shipment. If contaminated equipment is shipped, the bill of lading must contain a statement to that effect.

b. Acid tanks which have contained nitrocellulose will be flushed with water and treated with a 1 percent solution of sodium hydroxide to desensitize the nitrocellulose. Acid tanks which are not contaminated with explosives material will be drained and flushed clean with water. All lines entering and leaving the tanks must be disconnected. Protection must be afforded workmen against acid splash and acid fumes (air supply of self-contained breathing apparatus). Two men must always be present when a man enters an acid tank and the man going into the tank must wear a safety harness with a rope attached. Goggles, rubber boots, rubber aprons and masks for protection against oxides of nitrogen must be worn when washing sludge from acid tank with water since oxides of nitrogen may be generated. The drain will be closed, tank filled with water and soda ash added until tank contents are alkaline. The tank will then be flushed with clear water, drained and dried thoroughly.

3-4. Equipment Contaminated with Solvents. Equipment contaminated with flammable liquids should be washed with hot water, then steam cleaned.

3-5. Equipment Made of Wood. Wooden benches, tables, warehouse platforms, walking platforms, catch boxes, etc., which have contacted explosive material shall be burned after all the hazardous material that can be removed has been removed.

3-6. Miscellaneous Equipment. Miscellaneous equipment such as electric motors, switches, conduit, steam traps, indicating and recording instruments, scales, reducing gear housings, bearings, flexible couplings, belts, hoists, conveyors, and elevators should be inspected for contamination. Such items should be thoroughly cleaned and disassembled if necessary to thoroughly decontaminate. Careful inspection will be given equipment to detect hollow spaces wherein explosive materials might lodge. Such items must be flashed prior to sale or

scrap. These items may be contaminated by steaming after complete disassembly if the item is to be placed in standby for future use.

3-7. Pumps. Pumps which contain acid only shall be drained, flushed with water, and neutralized immediately with 7% soda ash (sodium carbonate) solution. Cleaning of pumps should include removal of packing, washing of screw threads with 7% soda ash solution, drying and oiling. Pumps which may have been contaminated with explosives shall be disassembled and all parts that have come in contact with explosives should be cleaned. The bed plates and floor coverings beneath explosives contaminated pumps shall be raised and surfaces thoroughly cleaned by hosing with hot water and steam, swabbing with rags, or other suitable means.

3-8. Pipes and Piping. a. *Underground Pipe:*

(1) Consideration should be given to underground pipe lines which may contain explosive material. Such pipe lines shall be flushed to free them of explosive material. The soil surrounding the pipe line may contain explosive material. Underground pipe lines which have contained explosive material should be removed or determination made that no explosive material remains in appreciable quantity within or outside the pipe.

(2) If, in special cases, underground pipe or adjacent ground contains explosive materials which cannot be entirely removed or decontaminated, such location will be indicated on the depot site maps, as well as physically marking the sites with appropriate signs and fencing as required.

b. *Pipes and Fittings.* Pipes, fittings, and valves which have contained explosive materials shall be decontaminated. The decontamination of some types of valves may be accomplished by disassembling, boiling in soda ash (sodium carbonate) solution and thorough cleaning with steam or other acceptable methods or materials. Service water, steam, air, fumes, sewer and sprinkler system piping may usually be assumed to contain no explosive materials. Contaminated packing, lagging and gaskets should be burned.

c. *Pipe Cutting.* If pipe lines which contain explosive material have been welded at the joints, cutting of the pipe may be approved after explosive material has been flushed out using high pressure water through both ends and all branches. The pipe should then be filled with water and cut, using a roller type cutter, keeping the pipe full of water and playing a stream of water over the outside of the pipe. Such a pipe must not be hammered or subjected to heat.

d. *Pipe Lagging.* Lagging on pipes which has been subject to overflow of explosive materials, or which may have contained explosive materials which have leaked from within, shall be removed to the burning grounds and destroyed. The insulation

shall be thoroughly wetted before removal, and be maintained wet.

e. *Flash Propagation through Empty Tubes and Pipelines.*

(1) Throughout Army installations there are many "empty" lines which have processed materials such as RDX, TNT, NG, Comp-B, Black Powder, which were thoroughly washed out at the end of production, currently remain intact, and may give a false sense of safety from a propagation viewpoint.

(2) "Cleaned" empty tubes or pipelines connecting explosives or hazardous material process buildings or equipment may provide paths through which a "Flash" may propagate. Several previous incidents of this nature have been reported; and, in fact, a system has been developed to cause flame to propagate through empty tubes.

(3) Past experience has proven that inactive explosives or hazardous material process lines which have been decontaminated to a XXX condition, contain sufficient contamination to support flame propagation. Even after a thorough rinsing with water or steam cleaning, a thin film or residue may still remain in the process lines in sufficient quantity to support propagation from one source to another. If reliance is being placed on the fact that empty tubes or pipelines will preclude incident, this false sense of security could cause an accident.

(4) Previous decontamination operations should be reviewed to insure provisions of this bulletin have been complied with. In addition, consideration should be given to filling lines with water or other approved liquids during production periods when materials are not being transferred, or during maintenance operations.

3-9. Buildings. Structures contaminated with explosive materials may be cleaned by the use of steam or hot water. When steam or hot water is employed for cleaning walls and floors, efforts should be made to avoid washing the explosives into cracks of the building and the area surrounding the building. At the conclusion of the decontamination by steam and water, the structure must be inspected and appropriate tests made to assure all hazardous materials have been removed.

3-10. Flashing Procedures. a. Controlled temperature method should be used in decontamination of equipment that is to be reassembled for production or standby purposes. Other contaminated materials and equipment to be sold for scrap must be subjected to high temperature flashing to assure complete decontamination. Approved Standing Operating Procedures developed by the installation shall be followed.

b. No metal scrap which has been contaminated with explosives or harmful chemicals shall be released for general use unless flashed and certified to be free of hazardous contamination.

3-11. Burning Grounds. Decontamination of burning grounds should be accomplished by subjecting the ground to a sustained fire of reasonable duration using available scrap lumber and other combustible materials and soaking with fuel oil. After burning, a visual inspection should be made and samples taken to determine the extent of decontamination. The burning operation should be repeated until reasonable assurance can be made that the ground is safe for surface use only.

3-12. Soil Contamination. The ground within 50 feet of buildings where an explosive material was handled should be carefully inspected. If the soil is

contaminated with explosive materials to such extent that a fire or explosive hazard exists, the layer containing the explosive material should be wetted and scraped, using nonsparking tools, and the hazardous material disposed of by burning the burning ground. If acid contamination is suspected around building foundations, the soil should be excavated and thoroughly neutralized with 7% soda ash solution.

3-13. Security Regulations. Applicable Army security regulations should be followed while decontamination work is in progress.

APPENDIX A
RECORD OF CONTAMINATED ITEMS

A-1. Identification of the item/complex involved.

A-2. Office of Record (that segment having responsibility for facility/equipment).

A-3. Subjects to be included in record of facilities and equipment which have been contaminated are, as a minimum:

- a. Previous use (include type of contaminant involved).
- b. Decontamination procedure used.
- c. Decontamination status degree.
- d. Special instructions.

e. Restrictions.

f. Identification of critical points of operation.

g. List of personnel knowledgeable about facility.

h. Transfer lines, drains, sumps, etc., involved.

i. Identity of equipment.

j. Site plans.

k. Signatures of personnel preparing and approving record.

l. Dates of various actions.

A-4. A Decontamination Tag will be used when item is a single piece of equipment.

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-9A. requirements for Logistics and Logistics Plan (700 and 701 Series).

Active Army and ARNG: (C)

USAR: (D)

APPENDIX C

SITE SURVEY SUMMARY SHEET OF 22 FEBRUARY 1991

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM
For Formerly Used Defense Sites

SITE SURVEY SUMMARY SHEET

FOR

DERP-FUDS SITE NO. B07MO001000

ST. LOUIS ORDNANCE PLANT, ST. LOUIS, MISSOURI

SITE NAMES: The areas under investigation at this site are currently named Lincoln/Pentair and Contico Chemical Company. Both companies are located on the formerly owned Department of Defense (DOD) property referred to as the St. Louis Ordnance Plant. From 1945 to 1951, the Plant was utilized as a record center for the Adjutant General's Office and the Finance Center, U.S. Army, then referred to as the St. Louis Administration Center. Portions of the original DOD property were redesignated the St. Louis Army Ammunition Plant on 1 March 1966.

LOCATION: The St. Louis Ordnance Plant originally consisted of 329.153 acres, located at 4300 Goodfellow Boulevard, south of Interstate Highway 70, in St. Louis, Missouri. On the enclosed site map, (Enclosure one to enclosure one) the Lincoln/Pentair property and the Contico Chemical Company, are outlined in red. These are the only two areas investigated in this report. The Lincoln/Pentair company is situated in the southeast area of the original site, at the intersection of Lincoln Way and Goodfellow Boulevard. The Contico Chemical Company is in the north central area at the intersection of Stratford and Goodfellow Boulevard.

SITE HISTORY: Purchased and constructed by the Government between 1941 and 1942, the St. Louis Ordnance Plant was a Government-owned contractor-operated (GOCO) plant for the production, testing and storage of small arms ammunition and components for 105mm shells. Other areas of the original site have been investigated under the site names St. Louis Area Support Center, Site Number B07MO016600, and the St. Louis Area Support Center, Family Housing Area, Site Number B07MO016500.

GSA conveyed 12.065 acres to the parent company of Lincoln/Pentair, the McNeil Corporation in July 1965. An additional 8.1526 acres were conveyed to the McNeil Corporation in June 1976. The McNeil Corporation and Lincoln/Pentair razed several of the original DOD structures and have replaced two such structures with a parking lot and an employee softball field (photos are on file). Significant beneficial use has been made of the remaining DOD building. Lincoln/Pentair produces lubricating equipment for the auto industry, including grease gun parts and grease fittings. Several hazardous and toxic chemicals are used in, or are waste products of, their manufacturing processes. Petroleum hydrocarbons are the most prevalent wastes. The latest Hazardous Waste and Compliance Inspection Report issued by the Missouri Department of Natural Resources to monitor Lincoln/Pentair's generation, storage and disposal of HTW is on file.

Contico International, Inc. purchased 15.852 acres in September 1980 from Schlueter Manufacturing Company, the original buyer from GSA. Except for the abandoned concrete bunkers, all structures on this site were built by Contico according to company officials. Contico subsequently sold 2.564 acres to Robert E. Laposky in November 1984, who currently operates The Bunker Restaurant in an original DOD concrete bunker. Beneficial use is being made of this bunker, the only structure on the property, and COE technicians found no evidence of DOD-generated hazardous conditions.

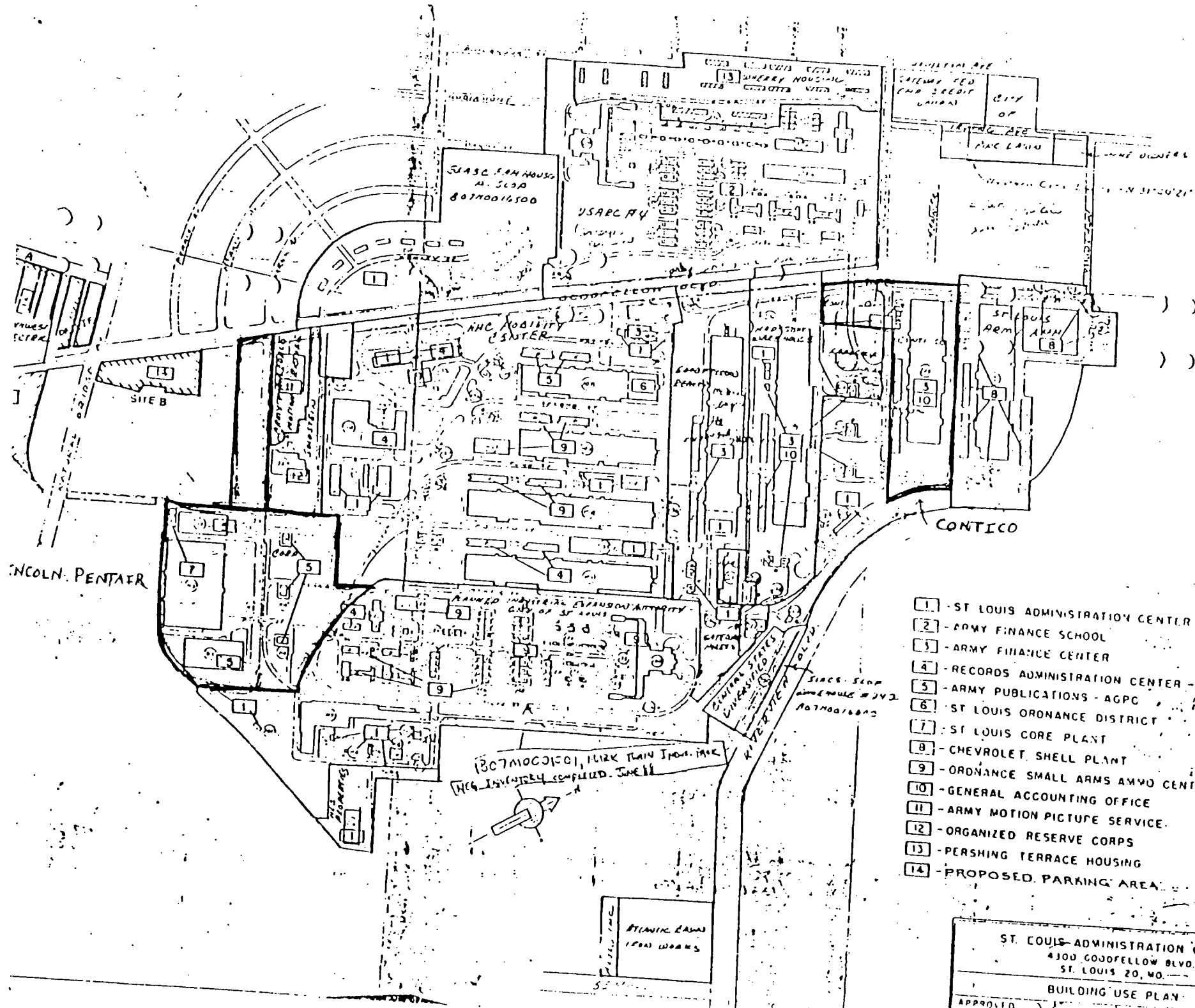
Contico International Inc. operates a distribution center on the north side of their facility and a chemical company, Puro Chemical, on the south side. Puro Chemical produces janitorial supplies. These buildings are numbered 3 and 10 respectively on the site map but, according to Contico's Safety Officer, Harold Siezmore, these are not original DOD buildings. No records have been found to confirm or deny this assertion. This area however, was used by the DOD for testing and loading explosives for distribution. The structures at the east end of the property are original DOD concrete bunkers, now unused, and were originally explosive testing sites. A United States Army Toxic and Hazardous Materials Agency study reports that DOD decontaminated all excessed property to the 5X condition. These bunkers appear to present no hazard and are within the 9 foot high chain link fence which entirely surrounds the company's property. The two gates in this fence are closed and locked after business hours.

Although Corps technicians saw several examples of toxic waste on Contico property, including many 55 gallon drums scattered around the concrete bunkers, none of this waste appeared to be DOD in origin. Most drums appeared new, and none were marked as DOD property. According to Mr. Seizmore, all utilities to the bunkers have been disconnected for over a year and COE technicians saw no evidence of DOD PCB transformers. Mr. Seizmore further claims that Contico officials know of no DOD-generated HTW or hazardous conditions on Contico property.

Studies conducted by the U.S. Army Toxic and Hazardous Materials Agency, June 1981 to August 1983, and the Environmental Protection Agency in 1984, did not reveal any hazardous conditions in the areas discussed in this report. Furthermore, contamination identified in other areas of the former Plant were not found to be migrating.

SITE VISIT: The site visits of these areas were made on 11 January 1990 by U.S. Army Corps of Engineers, Kansas City District personnel, Mr. Dan Ahern, Ms. Lisa Jones and Ms. Kanani DeKins. Accompanying the Corps personnel at Lincoln/ Pentair was the company's Environmental Director, Mr. Roy Long. Mr. Harold Siezmore, Safety Officer for Contico escorted the same Corps technicians over the Contico property. Because Contico built their facilities, this site visit was limited to walking the perimeter and Corps personnel did not enter any of the buildings in use on Contico property.

CATEGORY OF HAZARD: CON/HTW



- 1 - ST LOUIS ADMINISTRATION CENTER
- 2 - ARMY FINANCE SCHOOL
- 3 - ARMY FINANCE CENTER
- 4 - RECORDS ADMINISTRATION CENTER - A.G.O.
- 5 - ARMY PUBLICATIONS - AGPC
- 6 - ST LOUIS ORDNANCE DISTRICT
- 7 - ST LOUIS CORE PLANT
- 8 - CHEVROLET SHELL PLANT
- 9 - ORDNANCE SMALL ARMS AMMO CENTER
- 10 - GENERAL ACCOUNTING OFFICE
- 11 - ARMY MOTION PICTURE SERVICE
- 12 - ORGANIZED RESERVE CORPS
- 13 - PERSHING TERRACE HOUSING
- 14 - PROPOSED PARKING AREA

ST. LOUIS ADMINISTRATION CENTER
 4300 COJOFELLOW BLVD.
 ST. LOUIS 20, MO.
 BUILDING USE PLAN
 APPROVED

APPENDIX D

REVISED SITE SUMMARY SHEET OF 3 NOVEMBER 1995

REVISED
SITE SURVEY SUMMARY SHEET
FOR
DERP-FUDS SITE NO. B07MO001000
THE FORMER ST. LOUIS ORDNANCE PLANT, MISSOURI
3 NOVEMBER 1995

SITE NAMES: The former St. Louis Ordnance Plant (SLOP) is now owned by a number of different private and governmental entities, each of which has self entitled their portion of the formerly used Defense site. Between 1945 and 1951, the site was utilized as a record center for the Adjutant General's Office and the Finance Center, U.S. Army. During that time the area was referred to as the St. Louis Administration Center. Portions of the original DOD property were redesignated as the St. Louis Army Ammunition Plant on 1 March 1966.

LOCATION: The former SLOP is located at the intersection of Interstate 70 and Goodfellow Boulevard in St. Louis, Missouri (see enclosed site map).

SITE HISTORY: Purchased and constructed between 1941 and 1942, SLOP was a Government owned-Contractor Operated (GOCO) facility for the production, storage and testing of small arms ammunition and components for 105mm shells.

Between 1945 and the present most of the original 329 acre FUD site has been sold, leased or transferred to private interests.

SITE VISIT: There have been several site visits conducted by Kansas City and St. Louis District personnel over the last decade. The most recent site visit was conducted by Dan Ahern of the Kansas City District on 18 October 1995. Mr. Ahern was met at the site by Ray Strebbler of the Missouri Department of Natural Resources. Messrs. Ahern and Strebbler were greeted by employees of Linclon-Pentair, a current owner of the site. Ms. Yvonne Coffey, Environmental Coordinator, Mr. Lonny Willman, Maintenance Supervisor and Mr. Peter Wazlawek, Manufacturing Engineering Manager, all of Lincoln-Pentair provided a tour to the vaults containing original DOD and subsequently unused electrical transformers. A total of four transformers were identified that may require further action under DERP-FUDS.

CATEGORY OF HAZARD: CEW; CON/HTRW

a. The St. Louis District compiled an Ordnance and Explosive Waste Archival Search Report on SLOP. This report is on file.

b. There are four electrical transformers of DOD origin that are reported to have remained deactivated and on site since DOD property disposal in 1946.

APPENDIX E

PROJECT SUMMARY SHEET OF 10 JANUARY 1997

PROJECT SUMMARY SHEET
FOR
DERP-FUDS PRP/HTRW PROJECT NO. B07MO001003
THE FORMER ST. LOUIS ORDNANCE PLANT, MISSOURI
SITE NO. B07MO001000
10 JANUARY 1997

PROJECT DESCRIPTION: One of the owners of the formerly used Defense properties is seeking costs from the U.S. Government for expenses incurred for the excavation, removal and disposal of debris including asbestos containing materials. This debris was allegedly buried on site by the Army. The Complaint filed by the Plaintiff in the United States District Court for the Eastern District of Missouri, dated 20 September 1996, is enclosed.

PROJECT ELIGIBILITY: The former SLOP was built and utilized by the Army.

POLICY CONSIDERATIONS: There are two DERP-FUDS policies that counter the proposal of this PRP project. Under DERP-FUDS reimbursement for work performed by private interests is not allowed. Additionally, DERP-FUDS policy specifically prohibits projects that address asbestos containing materials unless incidental to the project. Since litigation is pending a request is made for a waiver to the above mentioned DERP-FUDS policy considerations.

PROPOSED PROJECT: It is proposed that an investigation be conducted to determine DOD's potential liability relating to the aforementioned allegations.

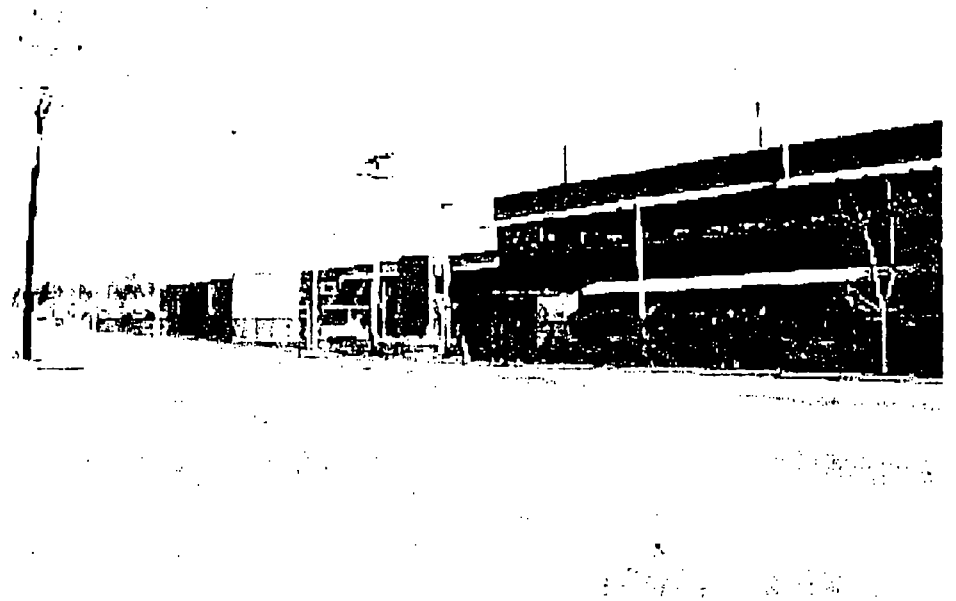
DISTRICT POINT OF CONTACT: The Kansas City District's point of contact for this matter is Dan Ahern at 816-426-2608, extension 3010.

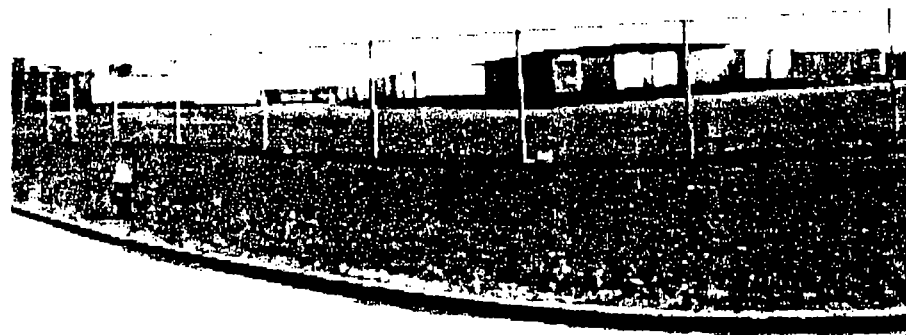
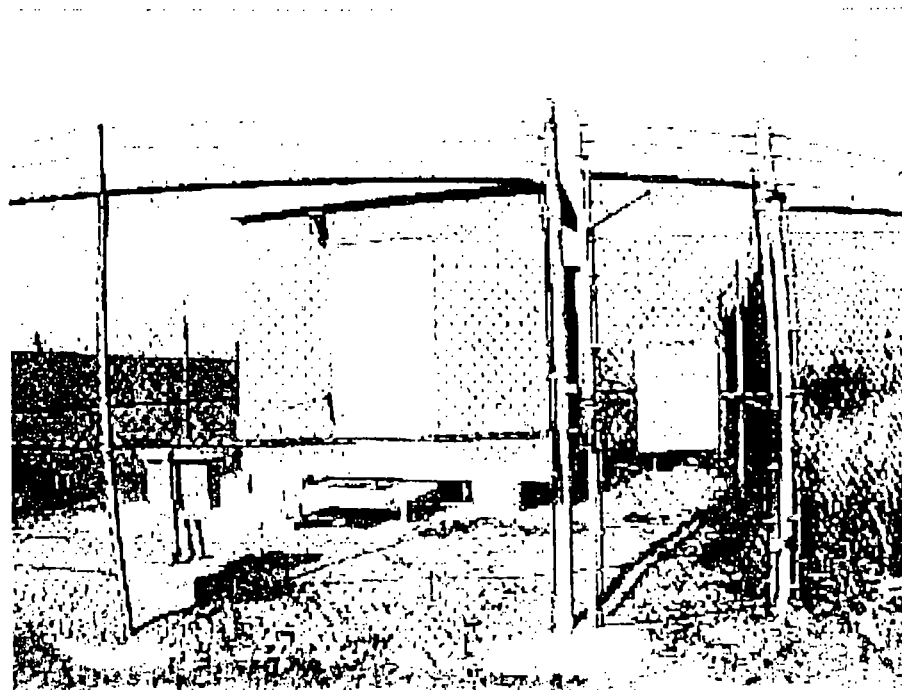
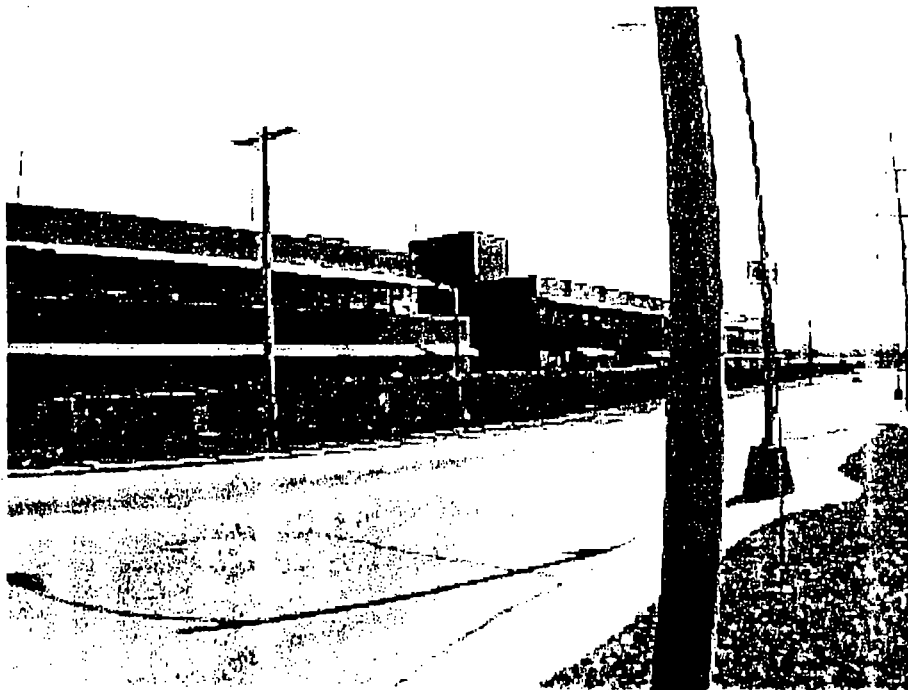
APPENDIX F

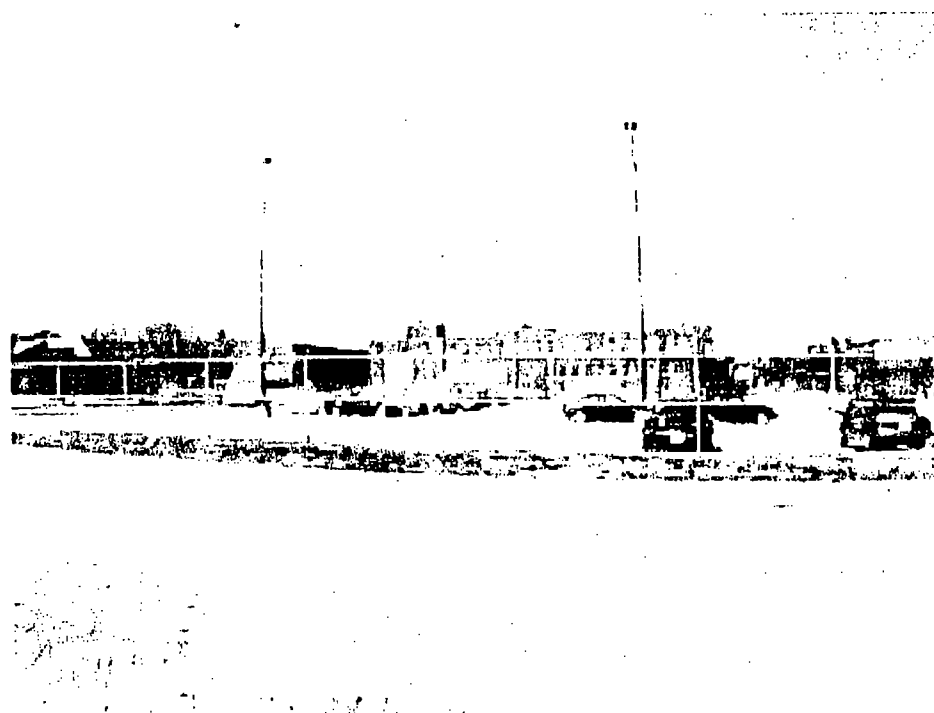
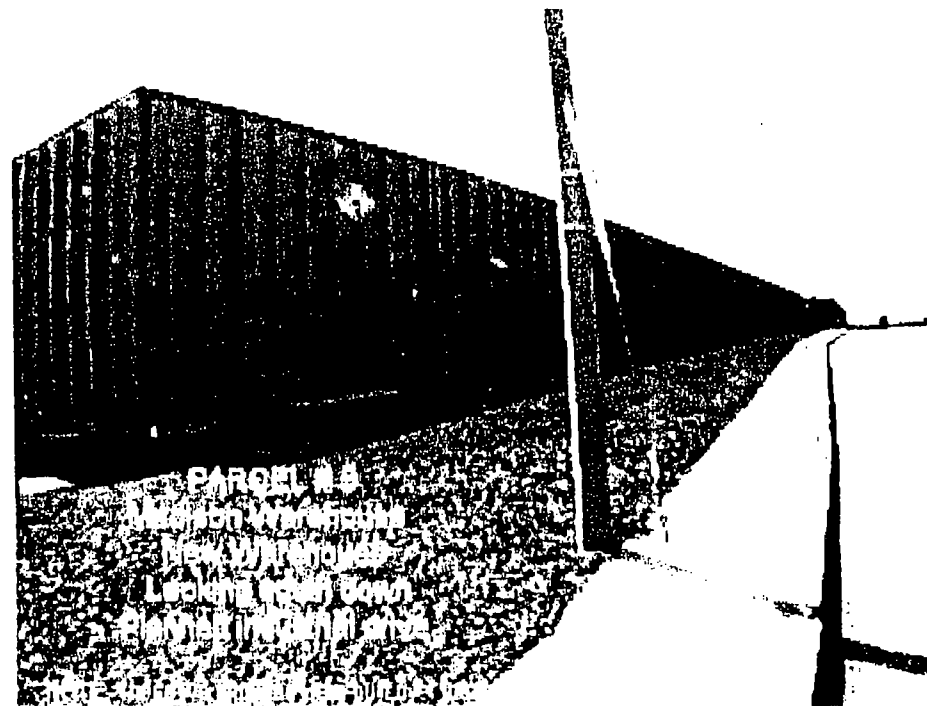
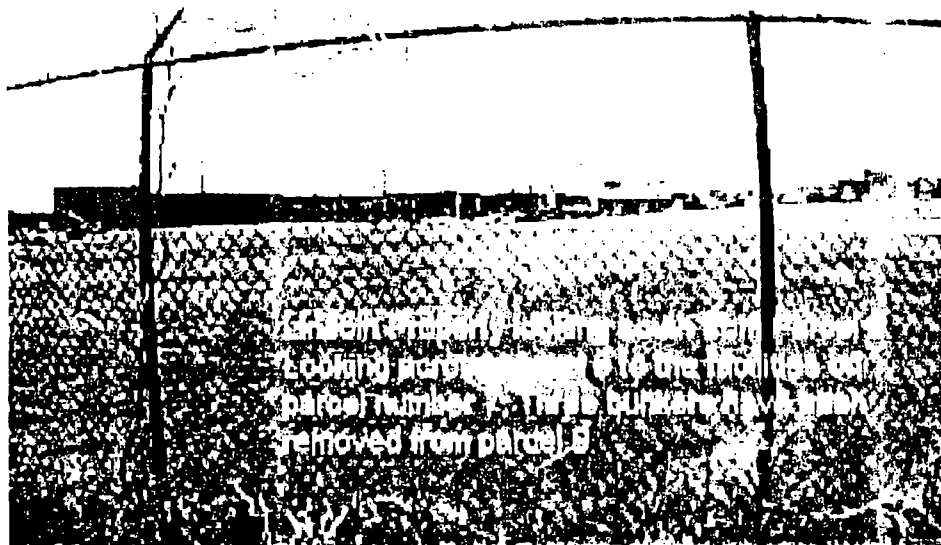
1999 PHOTOGRAPHIC RECORD

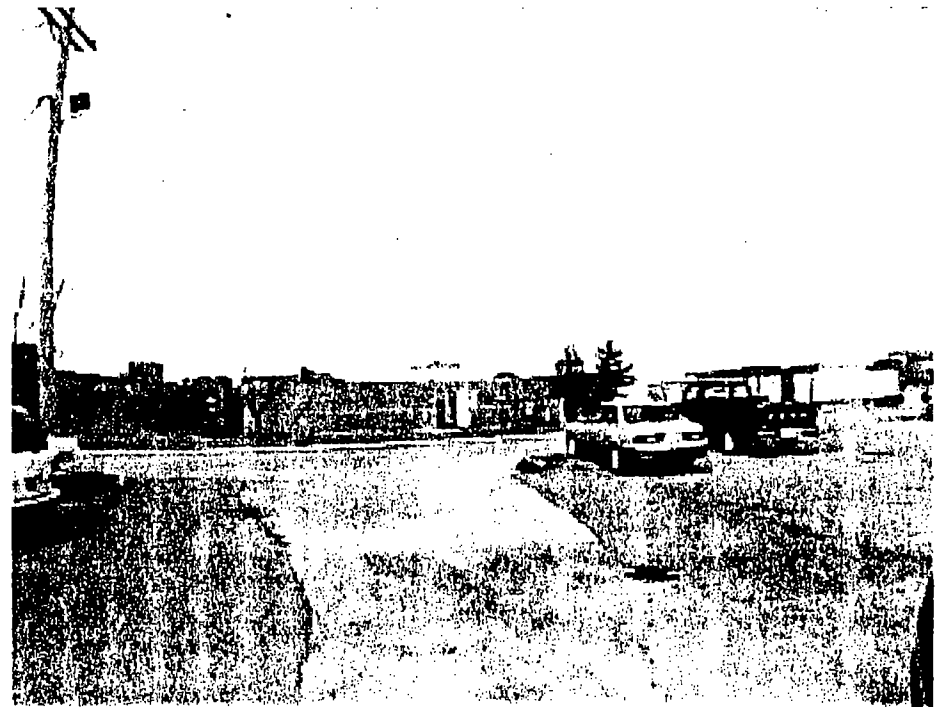
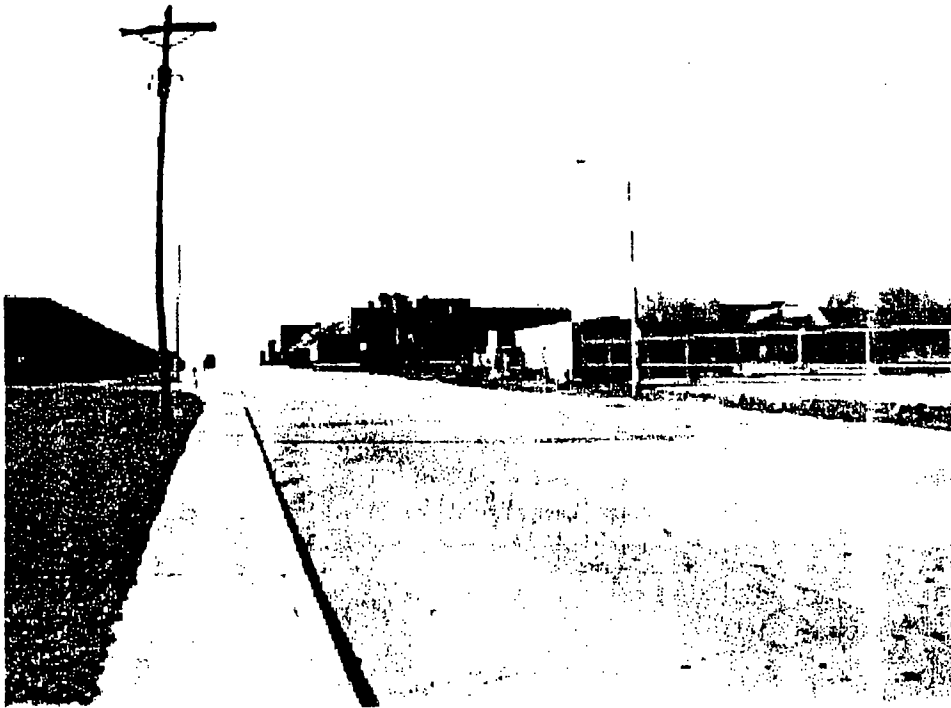
St. Louis Ordnance Plant (SLOP)

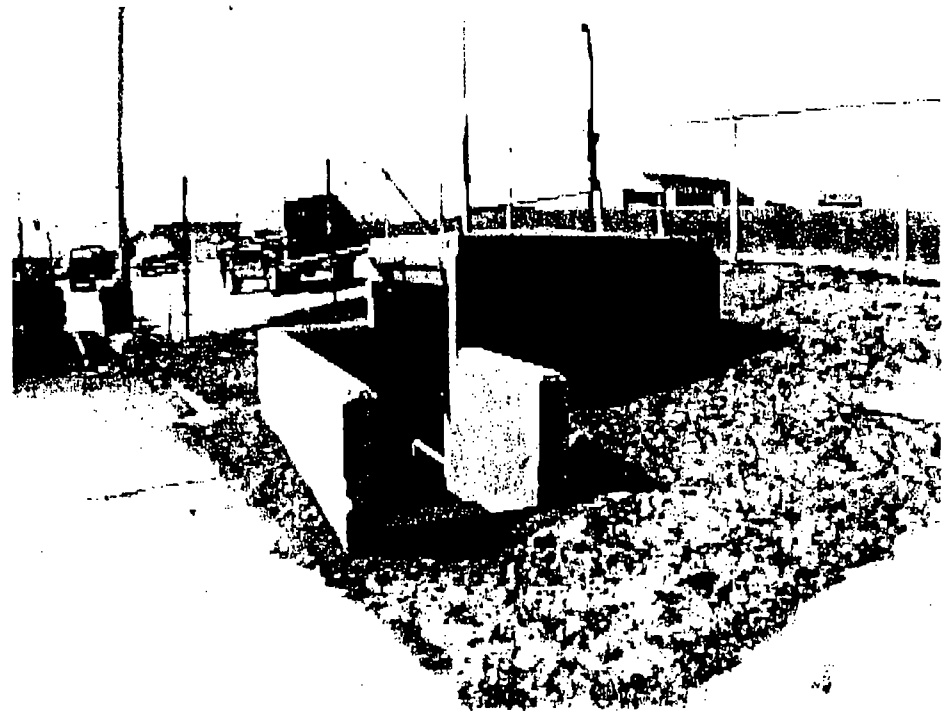
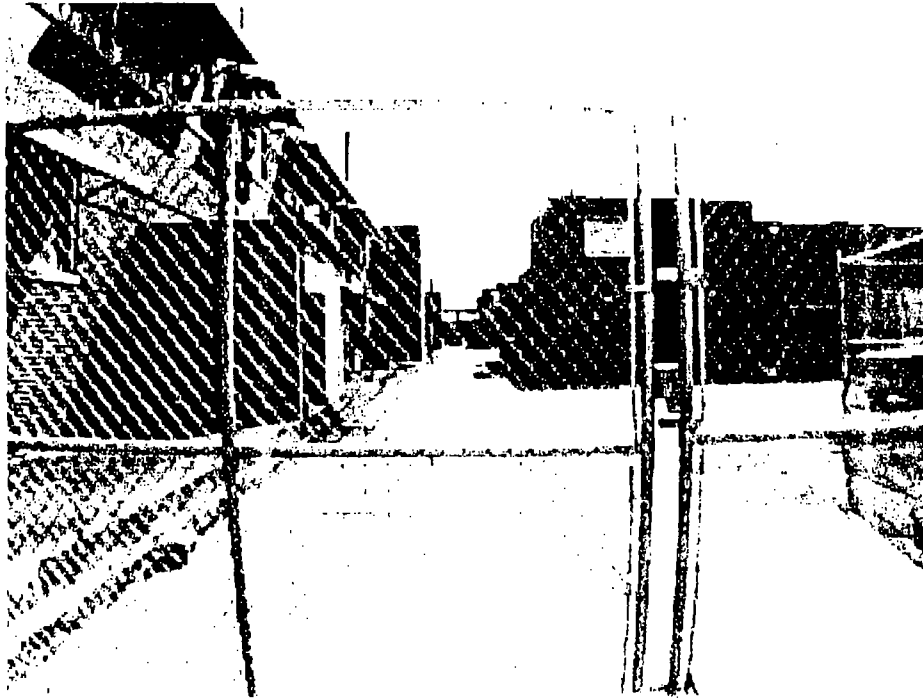
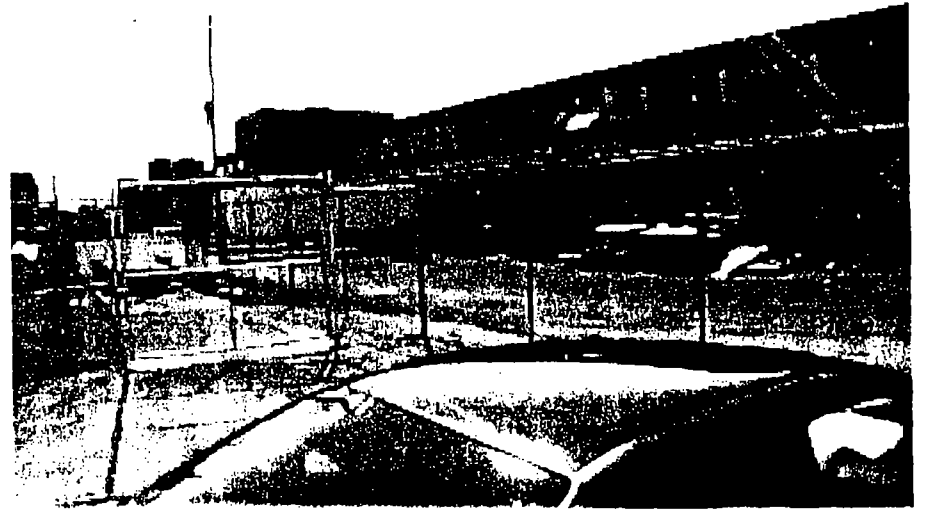
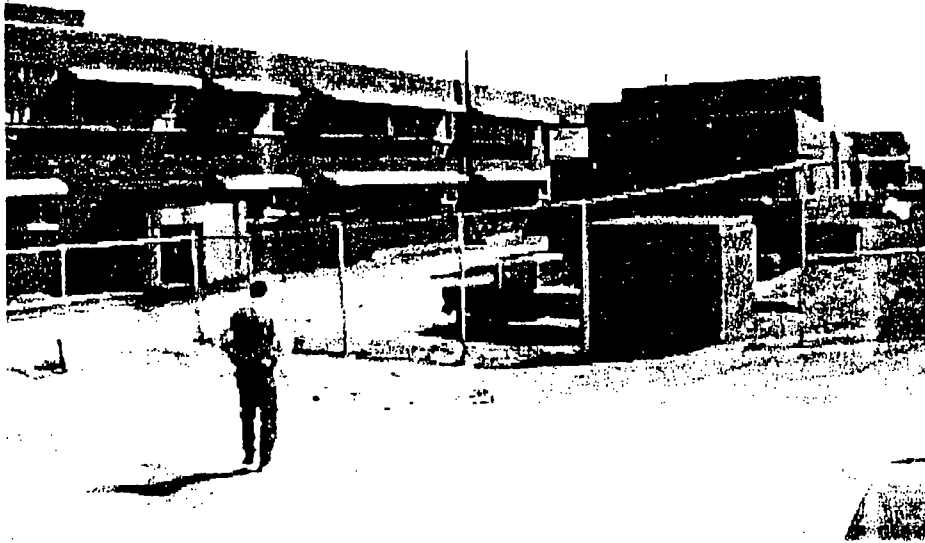
Photo Documentation - March 1999

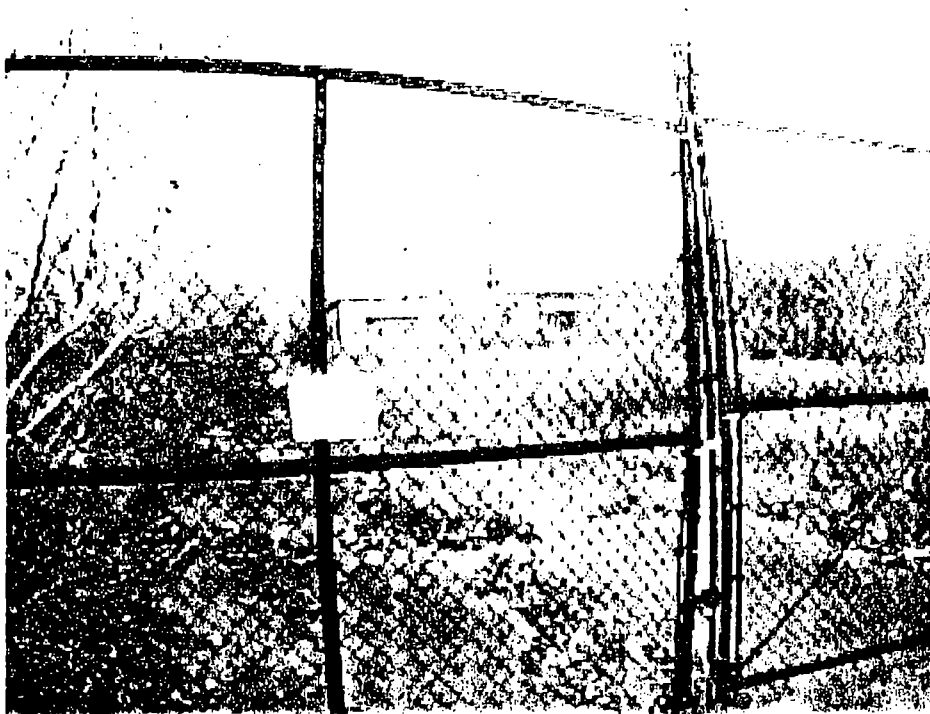


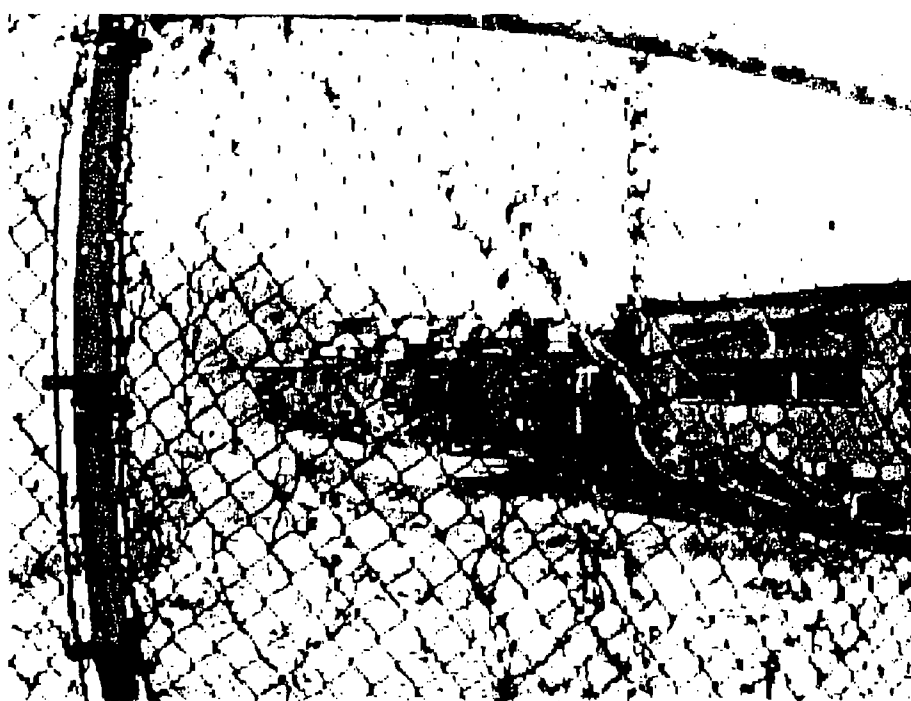
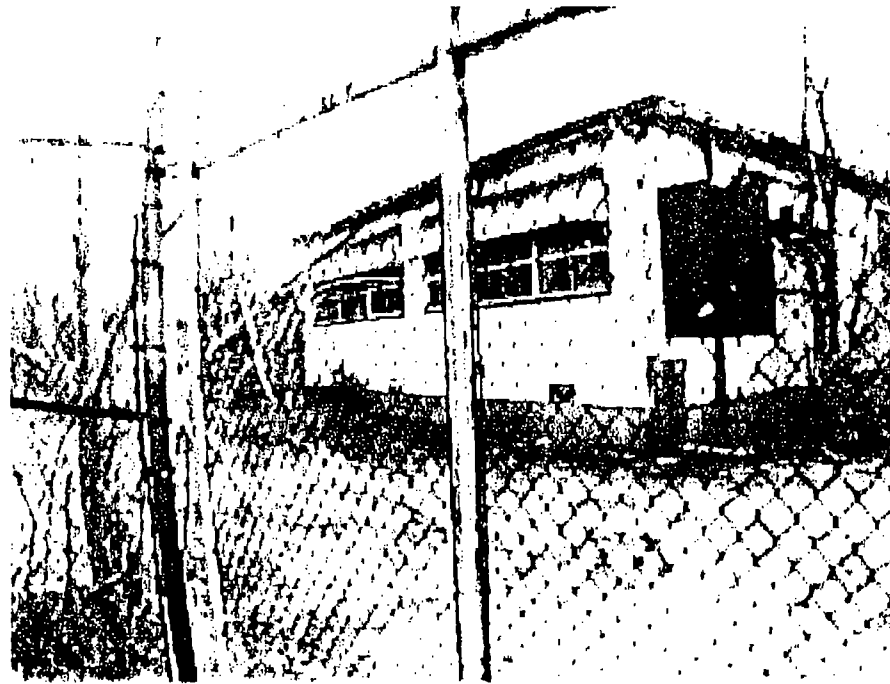
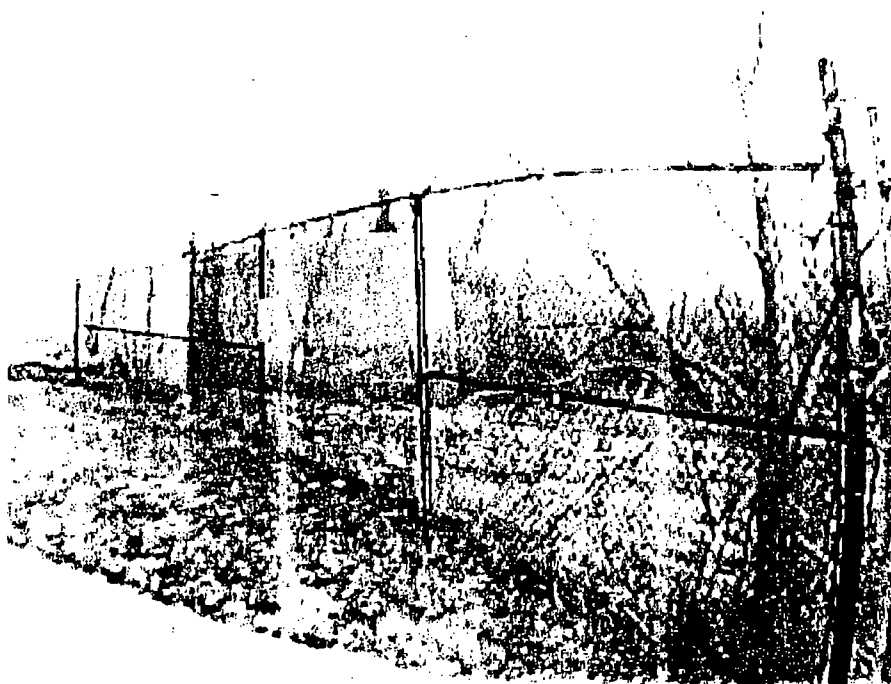












APPENDIX G

SURVEY QUESTIONNAIRE LETTER



DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
700 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

REPLY TO
ATTENTION OF:

June 3, 1999

Environmental Engineering Branch
Environmental Engineering D Section

Gateway Printing
4610 Planned Industrial Drive
St. Louis, Missouri 63120-1793

Dear Property Owner:

Your organization or company is receiving this questionnaire because you are a current or past owner of property located on the Former St. Louis Army Ordnance Plant (SLOP). The United States Army Corps of Engineers (USACE) has been tasked by the U.S. Government to investigate and document the status of Formerly Used Defense Sites (FUDS). SLOP is a former U.S. Army facility, and therefore, must be investigated by USACE. We have enclosed a map/photo, which indicates the area SLOP comprises, and a questionnaire. USACE Headquarters has tasked us to complete this investigation and documentation no later than September 30, 1999.

The FUDS program has three (3) major stages:

- Inventory
- Study
- Removal/Remediation

A brief explanation of this process follows:

Inventory

The inventory stage consists of property identification; real estate search to verify previous Department of Defense (DoD) ownership or usage; and preliminary eligibility assessment (PEA) to determine property and project eligibility. Conclusion of the PEA is documented by an inventory project report (INPR) which contains the real estate findings and other required PEA information. Included in this stage is an assessment of eligibility to progress to the "study" stage.

<u>PARCEL #</u>	<u>COMPANY NAME</u>	<u>ADDRESS</u>	<u>PHONE #</u>	<u>POC</u>
1	Contico International, Inc.	1101 Warson Road, St. Louis, Missouri 63132-1803	314-997-5900	Mr. Harold Sizemore, Safety Officer
1	House of Peace	5940 Stratford Avenue, St. Louis, Missouri	314-335-7337	
1	Gossrau Enterprises, Inc.			
2, 3	Madison Redevelopment Corp.			
2, 5	Madison Warehouse Corporation	4300 Planned Industrial Drive, St. Louis, Missouri 63120-1716	314-383-4300	
2	BOXTECH Packaging	4616 Goodfellow Blvd., St. Louis, Missouri 63120-1599	314-389-3545	
2	PM Door Service	9858 Vickie Place, St. Louis, Missouri 63136-1913	314-869-1909	
3	Boeing Storage Facility			
4	Gateway Printing	4610 Planned Industrial Drive, St. Louis, Missouri 63120-1793	314-261-7115	
5	Churchill Truck Lines			
5	Ryder Integrated Logistics	4232 Planned Industrial Drive, St. Louis, Missouri 63120	314-588-1318	
5	Pepsi-Cola Bottling Company	1 Union 70 Center Drive, St. Louis, Missouri 63120-1715	314-679-7000	
6	CSD Warehouse			

<u>PARCEL #</u>	<u>COMPANY NAME</u>	<u>ADDRESS</u>	<u>PHONE #</u>	<u>POC</u>
6	Union 70 Realty Partnership	5239 Brown Avenue, St. Louis, Missouri 63115-1200	314-385-7727	
6	DMD Group, Inc.			
6	Atlantic Basin Iron Works			
6	Redevelopment Corporation			
6	Clark-G.M. Redevelopment			
6, 7, 9	McNeil Corporation	1 Lincoln Way, St. Louis, Missouri 63120-1508	314-679-4370	
7, 9	Lincoln Industrial	1 Lincoln Way, St. Louis, Missouri 63120-1508	314-679-4296	Peter J. Wazlawek, Manager
8	Army Reserve			
11, 14	GSA Office Area	GSA Public Building Service, 4300 Goodfellow Blvd., St. Louis, Missouri 63120	314-263-3001	
12	GSA Parking Lot	GSA Public Building Service, 4300 Goodfellow Blvd., St. Louis, Missouri 63120	314-263-3001	
13	GSA Garage	GSA Public Building Service, 4300 Goodfellow Blvd., St. Louis, Missouri 63120	314-263-3001	